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ABSTRACT

The Rand Corporation, under contract with HEW, developed a research agenda for an emerging data base: The National Longitudinal Study (NLS) of the High School Class of 1972. The study had four main objectives: (1) to identify ways in which public decisionmakers can apply NLS data to key policy issues; (2) to foster the efficient use of a large and expanding longitudinal data base by researchers in numerous disciplines; (3) to recommend certain key studies in advance of foreseeable national problems; and (4) to identify research opportunities that alternative future directions of the NLS would open up. The agenda identified a broad array of policy issues suitable for research with the NLS. Research topics were clustered that involve closely related aspects of behavior into research domains pertaining to the attainment of economic self-sufficiency, higher education, and the circumstances of personal and family life. The ten high-priority studies singled out were: (1) influence of the secondary school; (2) migration and job search; (3) attitudes and career success; (4) segmented labor markets; (5) evolution of career objectives; (6) nontraditional attendance patterns in postsecondary education; (7) persistence and transition patterns of college parallel students in two-year colleges; (8) development of career aspirations and orientations among young women; (9) consequences of early parenthood; and (10) near-term marital stability. (RC)

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NATIONAL LONGITUDINAL STUDY OF HIGH SCHOOL SENIORS: AN AGENDA FOR POLICY RESEARCH

PREPARED FOR THE DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

STEPHEN J. CARROLL
PETER A. MORRISON

R-1964-HEW
JUNE 1976

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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PREFACE

In mid-1975, HEW's Office of the Assistant Secretary for Planning and Evaluation contracted with The Rand Corporation to develop a research agenda for an emerging data base: the National Longitudinal Study (NLS) of the High School Class of 1972. The study had four main objectives: (1) to identify ways in which public decisionmakers can apply NLS data to key policy issues; (2) to foster the efficient use of a large and expanding longitudinal data base by researchers in numerous disciplines; (3) to recommend certain key studies in advance of foreseeable national problems; and (4) to identify research opportunities that alternative future directions of the NLS would open up. This is a final report on the substance of that work.

SUMMARY

STATEMENT OF THE PROBLEM

The National Longitudinal Study of the High School Class of 1972 (NLS) is a large-scale longitudinal survey effort designed to provide information on high school students moving into early adulthood. The NLS was originally motivated by a need for data on and analysis of critical issues in educational policy; but it has taken on much broader significance as a data base that can support policy analysis on an array of subjects. Its broader usefulness, however, will depend on bringing the possibilities for research to the attention of agencies that sponsor and apply research on those subjects.

The NLS was inaugurated and is conducted by the National Center for Educational Statistics (NCES) in the Office of the Assistant Secretary for Education, Department of Health, Education, and Welfare. Planning for the study began in the late 1960s and data collection began in the spring of 1972. A baseline survey was conducted on a nationally representative random sample of 21,600 high school seniors drawn from 1200 high schools. The first follow-up survey commenced in October 1973 and obtained data from 93 percent of the students in the sample. A second follow-up, in the fall of 1974, obtained a 94 percent response. A third follow-up is to be undertaken in the fall of 1976, and a fourth, previously scheduled for 1978, has been postponed to perhaps 1979 or 1980 because of budget limitations.

As the NLS panel approaches the fourth interview wave, several critical policy problems are emerging.

First, because of the expanding volume of NLS data, research scheduling and management have become increasingly problematic. Limited research funds may close the door on important research opportunities, or they may be deferred until more obvious, but less important, applications of the data are explored. A related question is which analyses can be fruitfully undertaken with the data in hand at any time, and which ones should be deferred until the data from future follow-ups are available. There even is concern that the "newness" of the data may prematurely stimulate studies that would be better done using other data sets or that are less important than other research opportunities that could use more familiar data sets.

Second, although the NLS promises to be a valuable research tool in a wide variety of policy analyses by government agencies, it runs the risk of becoming stereotyped as an "educational data base" because of its genesis, emphasis, and sponsoring agency. Applications to issues thought to be "outside" the education domain may be slow to materialize (even though there is a fundamental link between education and virtually every aspect of the transition to adulthood following high school graduation). Until other agencies are made aware of the NLS data's wider possibilities, exploitation of the data base will be largely confined to the education community, and an important national information resource will be chronically underused.

Third, decisions must soon be made about the future directions of the NLS. It is generally agreed that the NLS should be extended to include the first four years after high school. The purpose would be to track college graduation and the transi-

tion into the labor market or postgraduate school for those students who followed the traditional postsecondary educational path. Budget limitations, as mentioned, have forced postponement of a fourth follow-up. Budget pressures have similarly affected NCES plans for a replication of the NLS with the High School Class of 1977. Twice postponed, the possibility of surveying a new cohort must now be regarded as only a possibility. Inevitably, the momentum imparted by the consensus over the direction of the NLS in its first few years is dissipating as the third (fall of 1976) follow-up nears, and its future direction is becoming more questionable with each passing year.

OBJECTIVES

Against this background, HEW's Office of the Assistant Secretary for Planning and Evaluation contracted with The Rand Corporation to develop a research agenda for the NLS. It has four objectives:

1. *To identify and call attention to ways in which the NLS data can be brought to bear on key policy issues that confront federal decisionmakers.* The agenda is intended to speak to contemporary and future policy issues, present the rationale for concrete research studies, and suggest where the interests of several agencies may intersect. The agenda should, in short, be a vehicle through which policymakers may perceive and act on common national research needs.

2. *To promote coordination in the use of the NLS data.* With each subsequent wave of the NLS, the number of feasible research topics multiplies. Many studies are likely to be supported by several federal agencies, no one of which can foster the orderly use of a large data base by scattered researchers with different interests.

3. *To time certain key studies for completion in advance of foreseeable national problems.* It is unfortunate that policy research tends to be guided unduly by problems of the past rather than of the future. Previous experience with large longitudinal data bases suggests that, without coordinative mechanisms, the use of such bases is likely to be disorderly and untimely with a consequent loss of much of their potential value.

4. *To clarify the issues in choosing future directions of the NLS.* The rationale for any data collection effort is the provision of necessary information. Longitudinal surveys are expensive; it is important to be clear at the start about what kind of information is to be collected, and for what purposes. Future directions of the NLS hinge on an exact understanding of the kinds of studies that are uniquely possible with longitudinal data, and whether these data are best obtained through follow-ups of the current panel, through beginning a new panel of high school graduates, or through both.

METHODOLOGY

At the outset, two design criteria were adopted. First, an agenda research topic should bear on a problem of current or foreseeable *concern to policymakers*, whether by virtue of its social importance or sheer magnitudes of federal expenditure. Virtually any topic can be judged relevant to some position; ours is that of the policymaker. Second, each topic should be one for which the NLS data set promises to yield

substantially new insight. We recognize that some research questions, despite their importance, are not amenable to analysis based on the NLS.

With these criteria in mind, we interviewed people affiliated with a dozen federal agencies, and several other researchers whose work in a diverse array of policy analyses gave us additional perspectives on important issues. Although we concentrated our interviews on people concerned with educational policy, we also deliberately interviewed people with other concerns. The interviews were of the "unstructured discursive" type, intended to elicit the respondents' views on the most important contemporary and future policy issues related to the behavior and experiences of high school seniors as they move into adulthood.

Upon finishing the interviews, we compiled a list of specific issues (e.g., rising rates of divorce, declining enrollments) and assembled them into broader domains of concern (e.g., the structure of labor markets, the formation and dissolution of families, student financial assistance). Doing so enabled us to discern connections among issues and organize them into manageable sets of research questions.

We then evaluated the feasibility of using the NLS data for research on those questions. We considered the information now available and that which might be obtained if the NLS were continued, either with further follow-ups of the 1972 panel or through replication with a new panel. We eliminated studies for which we judged it infeasible to use the NLS data, or that could be better conducted with some other data set. We wrote brief descriptions of the feasible studies, and then sent a complete set of the descriptions to all of the persons we interviewed for review and comment. We asked them to critique the studies, suggest any other important ones we might have overlooked, and identify what they considered high-priority studies. In the light of their responses, we revised our descriptions and chose ten high-priority studies.

MAJOR FINDINGS

The agenda identified a broad array of policy issues, both within and without the domain of education, suitable for research with the NLS. Rather than strive for an exhaustive list of such studies, we sought to think systematically about how the NLS relates to important *issues*, apart from the often narrowly defined agency programs to which they relate. Toward this end, we clustered research topics that involve closely related *aspects of behavior* into research domains pertaining to: (1) the attainment of economic self-sufficiency, (2) higher education, and (3) the circumstances of personal and family life.

The ten high-priority studies we singled out are:

- **Influence of the Secondary School**

Secondary schools—particularly their curricula, but also their size, student mix, resources, and other attributes—affect students' labor market outcomes in important ways. This study would concentrate on identifying how these attributes (along with such other factors as students' personal characteristics and their labor market aspirations and expectations) affect people's subsequent wages, hours of work, employment, and job satisfaction.

- **Migration and Job Search**

Migration may improve the functioning of labor markets, but many personal obstacles impede its full and rational operation. Recognizing that geographic mobility represents a potentially important means of broadening opportunity, this study would attempt to identify factors that make for better-informed and more effective choices about migration. The study would focus on non-college-attenders during the first few years of work.

- **Attitudes and Career Success**

The objective of this study would be to evaluate the proposition that the educational system acts as a massive screening device that sorts people on the basis of their attitudes and backgrounds. In this view, educational attainment serves primarily as an indicator of certain personal attributes (such as docility or social status) that are valued by employers. The study would answer the question of whether people with diplomas win the more desirable jobs because of their ability or because they have been certified as possessing the "right" attitudes.

- **Segmented Labor Markets**

According to the segmentation hypothesis, workers are sorted between the primary and secondary labor markets on the basis of their social class background. The purpose of this study would be to estimate the comparative importance of social origins versus skill and ability in determining the "quality" of a person's employment experiences.

- **Evolution of Career Objectives**

It has been asserted that contemporary young people seek jobs with high intrinsic rewards over and above strictly material rewards. This study would examine how aspirations evolve over time and in the light of experience.

- **Nontraditional Attendance Patterns in Postsecondary Education**

This study would examine the relationships between students' postsecondary educational attendance patterns and the availability of financial aid. It would address concerns about inadequacies and rigidities in financial assistance programs, which may force some students into nontraditional attendance patterns and may preclude others from moving away from the conventional toward more individually tailored patterns.

- **Persistence and Transition Patterns of College Parallel Students in Two-Year Colleges**

Many students who enter two-year colleges encounter obstacles that prevent them from going on to the bachelor's degree. This study would attempt to identify the factors that affect students' chances of completing the bachelor's degree.

- **Development of Career Aspirations and Orientations Among Young Women**

Role differentiation in early life affects later educational and occupational choices; most notably, it has relegated women to lower-level positions and lower-paying jobs. This study would illuminate how women's aspirations are affected by role differentiation and such other influences as counseling in high school, educational attainment, and marriage and childbearing patterns.

- **Consequences of Early Parenthood**

Early parenthood can be expected to have numerous consequences for adolescent parents, their kin, and the larger society. This study would attempt to enlarge the understanding of those consequences, particularly those that are matters for public concern, such as economic dependency, marital instability, and premature cessation of education and training.

- **Near-Term Marital Stability**

The contemporary American family has changed significantly. Among other developments, its increasing instability holds far-reaching social implications. The purpose of this study would be to examine the evolution of marital experience during the first few years, when many marriages dissolve. The study would focus on the effects of limited educational prospects, female work experience, timing of first marriage, and attitudes toward upward social mobility.

FUTURE DIRECTIONS OF THE NLS

The research possibilities that further follow-up of the Class of 1972 would enable fall into four basic areas: (1) individuals' relationships with the labor market, (2) their long-term life outcomes, (3) the intergenerational transmission of effects, and (4) the NLS as a basic investment in the future.

In considering the issue of further follow-ups of the Class of 1972 versus initiation of a new cohort, a dilemma emerges of organizational mission versus social needs.

From the standpoint of social needs there is a strong case for continuing the current NLS cohort. The possibility of uncovering faulty premises underlying major programs that entail large annual expenditures, so that these programs can be revised or phased out, makes such continuation seem highly cost-effective. Continuation would also enable the collection of data needed to assess labor market dynamics and the relationship of education and occupational mobility. Finally, continuation would be a basic investment in knowledge that may yield large payoffs as the longitudinal data base expands.

From the standpoint of the educational community and its most pressing concerns, initiation of a new cohort is more justifiable. The Class of 1972 has largely passed through the educational system; most of its members will have few, if any, further contacts with the system. A new cohort, on the other hand, would allow analyses of the participation of individuals in the educational process. It would also

resolve the question of whether the changing circumstances and environments confronting future students as they leave high school will invalidate the results obtained from analyses of the Class of 1972. In short, if the National Center for Educational Statistics must choose between these two alternatives, the case for initiating a new cohort seems stronger than that for continuing to follow the Class of 1972.

ACKNOWLEDGMENTS

In the course of this study, we interviewed officials in a dozen federal agencies, and several other researchers whose work in a diverse array of policy analyses gave us additional perspectives on important issues. We are grateful to these people for the time and information they granted us; they are listed in App. B. Special thanks are due to our Rand colleague Anthony Pascal, who collaborated closely on this study, and to James Hosek, Kevin McCarthy, and Will Harriss, who offered thoughtful comments and advice on an earlier draft of this report.

The idea for the study was conceived by Gerald R. Wheaton of HEW's Office of the Assistant Secretary for Planning and Evaluation. He monitored its progress and gave encouragement throughout.

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I. INTRODUCTION

The National Longitudinal Study (NLS) of the High School Class of 1972 is a large-scale longitudinal survey effort designed to provide information on high school students moving into early adulthood. The NLS was originally motivated by a need for data on and analysis of critical issues in educational policy; but it has taken on much broader significance as a data base that can support policy analysis on an array of subjects. Its broader usefulness, however, will depend on bringing the possibilities for research to the attention of agencies that sponsor and apply research in those subjects. This report is a step in that direction; it shows how the NLS can be used to strengthen the knowledge base on which a broad range of important public-policy decisions of the late 1970s and 1980s will rest. It is hoped that the report will provide a common framework for coordinating agencies' diverse research interests and help translate them into concrete policy studies. An enormous amount can be learned from the NLS, and a substantial return can be realized on the federal dollar invested in knowledge, if the possibilities described below are realized.

BACKGROUND

The NLS was inaugurated and is conducted by the National Center for Educational Statistics (NCES) in the Office of the Assistant Secretary for Education, Department of Health, Education, and Welfare. Planning for the study began in the late 1960s and data collection began in the spring of 1972. A baseline survey was conducted on a nationally representative random sample of 21,600 high school seniors drawn from 1200 randomly selected high schools. (Because the survey began late in the school year, some of the high schools could not participate; responses were obtained from 15,532 students in 949 high schools, representing 91 percent of the participating schools.) The survey elicited information directly from the respondents; separate instruments, directed to the respondents' schools and their schools' counselors, elicited data on the respondents from their student records, and on school resources, programs, and student bodies. Table 1 summarizes the information obtained about each respondent's high school. Table 2 summarizes the information obtained from each respondent. Appendix A provides further details of the NLS sample design and instrumentation.

The first follow-up survey began in October 1973 and obtained data from 93 percent of the students in the national sample. It was directed toward all students included in the original sample and contained retrospective items designed to obtain baseline information from those students who had been "missed" because their schools could not participate in the baseline survey.

The second follow-up, conducted in the fall of 1974, obtained a 94 percent response rate. A third follow-up is to be undertaken in the fall of 1976, and a fourth, previously scheduled for 1978, has recently been postponed to 1979 or 1980 because of budget limitations.

As the NLS panel approaches the fourth interview wave, several critical policy problems are emerging.

Table 1

INFORMATION REQUESTED ON SCHOOL QUESTIONNAIRE, SPRING 1972

Topic	Details Requested
Organization	Number of grades; weeks of school year
Enrollment	Total numbers, disadvantaged, minorities, drop-outs, parents' SES, community income
Special services	For handicapped, gifted, etc.
Special programs	Types of programs offered
Curriculum and tracking	Numbers in each; practices
Staff	Numbers of teachers, counselors; teachers' degrees, turnover; percent male
Testing and diagnosis facilities	Student exposure; counselor contacts; grading practices
Library	Resources, use by students
Specialized lab or shop facilities	Number, types, adequacy
Physical plant	Age and condition
Postsecondary enrollment	Numbers to college (2- and 4-year), other types of training
Location (of school or respondent)	Type of place; region; proximity to college

First, because of the expanding volume of NLS data, research scheduling and management have become increasingly problematic. Limited research funds may close the door on important research opportunities, or those opportunities may be deferred until more obvious, but less important, applications of the data are explored. A related question is which analyses can be fruitfully undertaken with the data in hand at any time, and which ones should be deferred until the data from future follow-ups are available. There even is concern that the "newness" of the data may prematurely stimulate studies that would be better done using other data sets or that are less important than other research opportunities that could use more familiar data sets.

Second, although the NLS promises to be a valuable research tool in a wide variety of policy analyses by government agencies, it runs the risk of becoming stereotyped as an "educational data base," because of its genesis, emphasis, and sponsoring agency. Applications to issues thought to be "outside" the education domain may be slow to materialize (even though there is a fundamental link between education and virtually every aspect of the transition to adulthood following high school graduation). Until other agencies are made aware of the NLS data's wider possibilities, exploitation of the data base will be largely confined to the education community, and an important national information resource will be chronically underused.

Third, decisions must soon be made about the future directions of the NLS. It is generally agreed that the NLS should be extended to include the first four years after high school. The purpose would be to track college graduation and the transi-

Table 2

INFORMATION REQUESTED FROM STUDENTS ON QUESTIONNAIRES, 1972-1974

Topic	Baseline Questionnaire (Spring 1972)	First Follow-up Questionnaire (Fall 1973)	Second Follow-up Questionnaire (Fall 1974)
Ability	Tests of vocabulary, reading, math, and other skills		
High school experience	GPA, types of courses, amounts of homework, extracurricular activities		Teacher's expectations for you; ethnicity of student body and teachers; were you "bussed"?
School attitudes	Problems, rating, emphasis		
Socioeconomic attributes	Ethnicity, health, veteran status, siblings, dependents, language spoken in home, religion, transiency; parents' education, occupation, income, their educational aspirations for respondent, mother's work during childhood		
Current status		Completed high school? Live with whom? Dependent on/for whom? Current income	Φ; possessions, debts, savings
Part-time work	Amount and type while in high school	Amount and type during postsecondary education/training	Φ
Postsecondary education plans	Nature and field; influences, impediments to more education; self-evaluation	Φ	Φ
Financing postsecondary education	Cost, financial sources	Willingness to borrow	
Peer Group	Their plans for education and work		
Values, self-concept	Life goals; descriptions of self	Φ	Φ; personality rating
Career plans	Target career; influences, military plans, apprenticeship or OJT prospects; homemaker plans	Target career, reasons	Φ
Family situation		Marital status, date of marriage, number of children, number of children planned	Φ; spouse's education and job
Education and training experience		Since spring 1972; types of programs, school; major or field, hours devoted, reasons for changes, time to complete, credits earned, GPA, degrees, satisfaction, costs, sources of finance, part-time work	Φ; (since fall 1973)
Work experience: civilian (similarly for military)		Since spring 1972; kind of job, reasons for no job, occupation, industry, duties, type of organization, hours, earnings, satisfaction, total weeks worked, how job found, use of training and education, OJT	Φ; (since fall 1973); attempts to find work using training/education, reasons for changing job

NOTE: The symbol "Φ" indicates that topics included in the preceding wave are also included in this wave.

tion into the labor market or postgraduate school for those students who followed the traditional postsecondary educational path. Budget limitations, as mentioned, have forced postponement of a planned fourth follow-up. Budget pressures have similarly affected NCES plans for a replication of the NLS with the High School Class of 1977. Twice postponed, the possibility of surveying a new cohort must now be regarded as only a possibility. Inevitably, the momentum imparted by the consensus over the direction of the NLS in its first few years is dissipating as the third (fall of 1976) follow-up nears, and its future direction is becoming more questionable with each passing year.

THE AGENDA

Against this background, HEW's Office of the Assistant Secretary for Planning and Evaluation contracted with The Rand Corporation to develop a research agenda for the NLS. It has four objectives:

1. *To identify and call attention to the ways in which the NLS data can be brought to bear on key policy issues that confront federal decisionmakers.* The agenda is intended to speak to contemporary and future policy issues, present the rationale for concrete research studies, and suggest where the interests of several agencies may intersect. The agenda should, in short, be a vehicle through which policymakers may perceive and act on common national research needs.

2. *To promote coordination in the use of the NLS data.* With each subsequent wave of the NLS, the number of feasible research topics multiplies. Many studies are likely to be supported by several federal agencies, no one of which can foster the orderly use of a large data base by scattered researchers with different interests.

3. *To time certain key studies for completion in advance of foreseeable national problems.* Previous experience with large longitudinal data bases suggests that, without coordinative mechanisms, the use of such bases is likely to be disorderly and untimely with a consequent loss of much of their potential value. It is unfortunate that policy research tends to be guided unduly by problems of the past rather than the future, as generals are sometimes said to have a penchant for refighting the last war. The inherent trend of events often goes unnoticed for some time after the events have been observed and statistical evidence has been collected, and action is too often taken belatedly. Breaking free from this reactive mode necessitates orienting a research agenda toward the future.

4. *To clarify the issues in choosing future directions of the NLS.* The rationale for any data collection effort is the provision of necessary information. Longitudinal surveys are expensive; it is important to be clear at the start about what kind of information is to be collected, and for what purposes. Future directions of the NLS hinge on an exact understanding of the kinds of studies that are uniquely possible with longitudinal data, and whether these data are best obtained through follow-ups of the current panel, through beginning a new panel of high school graduates, or through both.

DEVELOPING THE AGENDA

The research agenda set forth in this report identifies a broad array of policy

issues, both within and without the domain of education, suitable for research with the NLS. Rather than strive for an exhaustive list of policy-relevant studies, we sought to think systematically about how the NLS relates to important *issues*, apart from the often narrowly defined agency programs to which they relate. To approach the agenda from too narrow a perspective (an occupational hazard in any government agency) runs the risk of overlooking applications to important issues that intellectually span several agencies, but administratively fall into the cracks separating them. Toward this end, we concentrated on the types or categories of studies that can be undertaken with the data.

At the outset, two design criteria were adopted. First, an agenda research topic should bear on a problem of current or foreseeable *concern to policymakers*, whether by virtue of its social importance or sheer magnitudes of federal expenditure. Virtually any topic can be judged as relevant to some position; ours is that of the policymaker. Second, each topic should be one for which the NLS data set promises to yield substantially new insight. In applying this criterion, we recognized that some research questions may be attacked more expeditiously or in greater depth with sources of data other than the NLS.

With these criteria in mind, we interviewed 26 people affiliated with a dozen federal agencies, and several other researchers whose work in a diverse array of policy analyses gave us additional perspectives on important issues. (See App. B for a list of interviewees.) Although we concentrated our interviews on people concerned with educational policy, we also deliberately interviewed people with other concerns. The interviews were of the "unstructured discursive" type, intended to elicit the respondents' views on the most important contemporary and future policy issues related to the behavior and experiences of high school seniors as they move into adulthood.[1]

Upon finishing the interviews, we compiled a list of specific issues (e.g., rising rates of divorce, declining enrollments) and assembled them into broader domains of concern (e.g., the structure of labor markets, the formation and dissolution of families, student financial assistance). Doing so enabled us to discern connections among issues and organize them into manageable sets of research questions.

We then evaluated the feasibility of using the NLS data for research on those questions. We considered the information now available and that which might be obtained if the NLS were continued, either with further follow-ups of the 1972 panel or through replication with a new panel. We eliminated studies that we judged infeasible using the NLS data, or that could be better conducted with some other data set. We wrote brief descriptions of the feasible studies and then sent a complete set of the descriptions to all of the persons we interviewed for review and comment. We asked them to critique the studies, suggest any other important ones we might have overlooked, and identify what they considered high-priority studies. We also elicited suggestions from our Rand colleagues. In the light of the responses we obtained, we revised our descriptions and chose ten high-priority studies.

It was difficult to assign priorities among so diverse a set of research topics, and we cannot claim to have applied the same degree of objectivity here as we did in developing the entire list of studies. Judgment had to be exercised, however, and the

[1] Inevitably, our choice of whom to interview contained some bias toward topic areas we regarded from the outset as likely to be important. However, we have sought to broaden our scope beyond the most obviously important areas, on the assumption that no researcher is entirely free from tunnel vision.

judgment was our own. The following section presents the grounds on which we based our judgments.

PRIORITIES

Every study described below addresses one or several policy issues that were judged important by several federal officials or researchers. Of the thousands of studies that could be conducted with the NLS data, those described here can be deemed germane to current federal policy concerns. Any one of them should find a receptive audience in Washington.

We identified the following ten high-priority studies; each is marked by a bullet [•] where it is discussed in detail in the text:

- **Influence of the Secondary School**

Secondary schools—particularly their curricula, but also their size, student mix, resources, and other attributes—affect students' labor market outcomes in important ways. This study would concentrate on identifying how these attributes (along with such other factors as students' personal characteristics and their labor market aspirations and expectations) affect people's subsequent wages, hours of work, employment, and job satisfaction.

- **Migration and Job Search**

Migration may improve the functioning of labor markets, but many personal obstacles impede its full and rational operation. Recognizing that geographic mobility represents a potentially important means of broadening opportunity, this study would attempt to identify factors that make for better-informed and more effective choices about migration. The study would focus on non-college-attenders during the first few years of work.

- **Attitudes and Career Success**

The objective of this study would be to evaluate the proposition that the educational system acts as a massive screening device that sorts people on the basis of their attitudes and backgrounds. In this view, educational attainment serves primarily as an indicator of certain personal attributes (such as docility or social status) that are valued by employers. The study would answer the question of whether people with diplomas win the more desirable jobs because of their ability or because they have been certified as possessing the "right" attitudes.

- **Segmented Labor Markets**

According to the segmentation hypothesis, workers are sorted between the primary and secondary labor markets on the basis of their social class background. The purpose of this study would be to estimate the comparative importance of social origins versus skill and ability in determining the "quality" of a person's employment experiences.

- **Evolution of Career Objectives**

It has been asserted that contemporary young people seek jobs with high intrinsic rewards over and above strictly material rewards. This study would examine how aspirations evolve over time and in the light of experience.

- **Nontraditional Attendance Patterns in Postsecondary Education**

This study would examine the relationships between students' postsecondary educational attendance patterns and the availability of financial aid. It would address concerns about inadequacies and rigidities in financial assistance programs, which may force some students into nontraditional attendance patterns and may preclude others from moving away from the conventional toward more individually tailored patterns.

- **Persistence and Transition Patterns of College Parallel Students in Two-Year Colleges**

Many students who enter two-year colleges encounter obstacles that prevent them from going on to the bachelor's degree. This study would attempt to identify the factors that affect students' chances of completing the bachelor's degree.

- **Development of Career Aspirations and Orientations Among Young Women**

Role differentiation in early life affects later educational and occupational choices; most notably, it has relegated women to lower-level positions and lower-paying jobs. This study would illuminate how women's aspirations are affected by role differentiation and such other influences as counseling in high school, educational attainment, and marriage and childbearing patterns.

- **Consequences of Early Parenthood**

Early parenthood can be expected to have numerous consequences for adolescent parents, their kin, and the larger society. This study would attempt to enlarge the understanding of those consequences, particularly those that are matters for public concern, such as economic dependency, marital instability, and premature cessation of education and training.

- **Near-Term Marital Stability**

The contemporary American family has changed significantly. Among other developments, its increasing instability holds far-reaching social implications. The purpose of this study would be to examine the evolution of marital experience during the first few years, when many marriages dissolve. The study would focus on the effects of limited educational prospects, female work experience, timing of first marriage, and attitudes toward upward social mobility.

We applied the following criteria in singling out the ten high-priority studies:

- Degree of relevance to current policy and foreseeable policies;
- Breadth of interest among policymakers;
- Potentialities for building on findings from previous research;
- Completeness of coverage of issue area;
- Potential cost of conducting research;
- Magnitude of federal resources likely to be affected;
- Overlap with other studies, using the NLS or other data;
- Degree of adequacy of data; and
- Immediacy of the issue.

The studies do not generally rank equally on all these criteria, and there are no generally accepted weights that can be used to assess the relative importance of the criteria. Judgments had to be made on a case by case basis. Moreover, our interviewees frequently disagreed on where a study ranked by any one criterion. Some interviewees, for example, assigned high priority to studies of the complex of issues surrounding student financial aid policies because of their relationship to current policy, the sizable federal resources involved, and the immediacy of the issues. Others assigned somewhat lower priority to those studies, and still others noted that several large research efforts on those issues are now under way, or averred that the NLS is not particularly well suited for analyzing the issues. (Federal student financial aid programs were dramatically restructured in 1972 and were suffering the "teething" problems typical of new programs just as the NLS students left high school. Several interviewees felt that the data might not accurately reveal the effect of the programs. Others disagreed.)

Our final list of priority studies purposely spanned a range of applications in which the NLS data might be useful. Policymakers and researchers are well aware of the data's utility for research on the educational issues that originally motivated the NLS. Much of that research will be undertaken regardless of our comments. This report discusses the most important of those studies, but also calls attention to applications that might otherwise be overlooked: those that lie outside the domain of educational concerns, and applications to issues that are likely to confront policymakers in the future.

OUTLINE OF THE STUDY

Section II discusses how the NLS data can support policy research.

Sections III through V present specific research topics in three broad policy domains: (1) people's labor market experiences and career success (Sec. III); (2) policy issues in higher education (Sec. IV); and (3) problems people encounter in their personal and family lives (Sec. V).

Longer-term issues of individuals' life outcomes are considered in Sec. VI. Finally, Sec. VII analyzes and compares the advantages of continuing to follow the 1972 cohort beyond the fall 1976 survey and of replicating the effort with a new cohort. The object is to provide a basis for informed choices about future directions for the NLS.

Readers interested in a detailed description of the NLS data, a list of people interviewed in connection with the study, and a list of studies based on the NLS data that were under way in the fall of 1975, are referred to Apps. A, B, and C.

II. ROLE OF THE NLS IN SUPPORT OF POLICY ANALYSES

FORESEEABLE ROLES FOR SOCIAL POLICY RESEARCH

Research with the NLS can illuminate some of the processes and problems of social change and clarify constructive ends that change may serve. Specifically, it can: (1) transform diffuse and ill-defined social objectives—"individual self-sufficiency," "equal opportunity," and the like—into tangible choices of emphasis among competing objectives amenable to political resolution; (2) diagnose failures in the attainment of objectives—be they income discrimination, sex-role stereotyping, or poor information—thereby focusing attention on the causes of problems and setting the stage for public debate on what to do about them; (3) identify feasible courses of public action and evaluate their probable consequences.

It is useful to think of the problems that research may address as evolving through several stages, at each of which successively more specific types of diagnosis are needed. Policymakers' information needs range from a straightforward description of changes under way to complex forms of evidence or indicators that relate to a specific subpopulation involved in a specific social program to be evaluated. These needs are significantly shaped by the stage where policymakers find themselves or think they find themselves. These two aspects—the reality and the perception—afford a basis for anticipating what information will prove useful to whom, and for what reasons, and for identifying the several types of audiences among policymakers.

At the *early warning* stage, some phenomenon or change signals a forthcoming problem on which the government may need to act. For example, recent studies have suggested that the economic value of a college education has declined. That finding has alerted policymakers to the possibility that higher education enrollment rates may decline, that avenues of social mobility may narrow, and that job "bumping" may ensue. There is no certain way to predict whether those possibilities will come to pass, but they carry profound implications that policymakers cannot safely ignore. What is needed in such instances is descriptive information about what is happening.

At the *issue exploration* stage, there is a factual basis for the problem's existence and the necessity for intervention. For example, the rewards offered by civil service may be poorly matched to the occupational aspirations of today's talented young people, many of whom want the opportunity to test their skills for a period of time and then move on. The issue is clear—the effectiveness of the process by which the government gets, uses, and loses workers—but the factual base for pinpointing weaknesses is missing. Information is needed on the decision processes whereby young people are drawn into government service, on the types of persons discouraged from remaining in it (and why), and on the overall effects.

Another illustration is the possible intergenerational persistence of welfare dependency. The causes could be several. Daughters of welfare-dependent families may tend to be tracked early in high school toward dead-end careers with meager earnings, and may resort to welfare dependency when they start bearing children.

Issue exploration in this instance would take the form of examining the influence of tracking on subsequent career paths and earnings, and differential propensities to claim welfare (with other background variables controlled).

At the *problem identification* stage, issues are translated into specific problems (or questions) to which solutions (or answers) can be devised. For example, the Duke Power decision permits employers to use criteria that screen out disproportionate numbers of minority applicants only if they can show that their criteria predict actual job performance. The Equal Employment Opportunity Commission is directly concerned with such criteria, and requires statistical evidence on the correlation between screening criteria and job performance.

Finally, at the *evaluation* stage, attention turns to measuring the effectiveness of ongoing programs. For example, the Education Amendments of 1972 extended and modified the enabling legislation for most existing student financial aid programs and created several new ones. Federal decisionmakers have to choose appropriate levels and efficient patterns of support for the variety of authorized programs. To do so, they need to know how those programs have jointly and separately affected students' postsecondary decisions.

What are labelled here as discrete stages actually form a spectrum of information needs. The NLS, like other general purpose surveys, is best suited to fulfilling those needs that arise at the "early warning" and "issue exploration" stages. Accordingly, our research agenda is heavily skewed toward studies that are centered on the first two stages; analyses centered on problem identification and evaluation are less often feasible, for they generally require that a specific affected segment of the population be delineated.

TRANSITION FROM ADOLESCENCE TO ADULTHOOD

The ages encompassed by the NLS data mark the passage from the socially protected period of childhood and adolescence to the socially demanding period of adulthood. Restrictions deemed beneficial to individual development lapse at this stage, and the often ill-defined options and obligations of adult responsibility are imposed. Young people's success in making the transition varies enormously, for reasons that are only partially understood. Some cling to dependency; others move into self-determination smoothly and completely. The NLS data enable us to trace patterns in the communicating and granting of vital options at this stage of the life cycle, and help illuminate how young people wend their way through the difficult decisions their options entail.

Such options bear on two fundamental and interlinking aspects of human life that public policy is concerned with in one way or another: self-sufficiency and self-realization. Self-sufficiency includes the constellation of options having to do with securing an adequate income for supporting a person and his or her dependents, together with the preparation necessary to attain that state. Self-realization includes the constellation of options having to do with career satisfaction, family formation or dissolution, childbearing, education for leisure, cultural competence, and the assumption of civic responsibilities.

It is important to recognize that the NLS is severely limited in its capacity to describe the complete *attainment* of self-sufficiency and self-realization. These are

long-term outcomes, revealed only gradually as people's lives unfold. (This consideration is one basis for arguing that the Class of 1972 should be tracked into their middle adult years, a point discussed in Sec. VI.) The real strength of the NLS lies instead in its capacity to register and describe the initial *passage into* these socially desired states. The elemental units of this passage are the choices young people make in responding to the options that society communicates and grants during this phase of life.

From the analyst's perspective, each choice is part of a larger branching process through which the person progresses toward an array of possible outcomes. The ill-informed adolescent, though, may not appreciate this larger architecture. What the analyst perceives as sequences of choice may appear to the young persons involved as disjointed responses to life's changes: graduating from high school, enlisting in the military, going to work, getting married, entering college, becoming a parent.

The sociological conception of the life cycle furnishes a useful framework for identifying the key decision areas that, for our purposes, make up the transition from adolescence to adulthood.[1] These decision areas can be divided into three distinct but overlapping systems. The first, which relates to the labor force, consists of various paths that lead from economic dependence toward eventual independence. The second, which relates to education and training, consists of avenues leading toward realization of individual abilities and participation in society. The third, which relates to the formation and structuring of families, consists of paths from the family of origin to a new primary family. Table 3 shows the relationship between these three decision areas and our ten high-priority studies.

The transition from adolescence to adulthood is multidimensional and is characterized by a complex architecture of contingencies. Choices made in one decision area may affect options available in another area, and at another time. Because choices are interconnected and often sequential, young people may unwittingly foreclose later options through their present choices. Entry into the labor force, for example, is a process of critical importance in a young person's life, for it will affect later occupational achievement and many other aspects of how the person subsequently lives.[2] The person's decision to marry may reduce the chances for continuing education; a woman's decision to bear a child may remove her from the labor force and thus reduce her family's income; the decision to forgo postsecondary education precludes subsequent entry into a variety of occupations; and so forth.

Personal choice may be expanded or thwarted, depending on how effectively the options in each of these decision areas are communicated and granted. Research can serve several major concerns of public policy here. One concern is the *equity* with which certain key options for self-realization are made available: the options to continue postsecondary education, to go to work, and so forth. Research can reveal the mechanisms whereby options are restricted or denied. Another concern is with the *investments* embodied in certain decisions, especially those having to do with education and career choice. Research can help to articulate the nature and consequences of these investments; those consequences are not always completely or

[1] Paul C. Glick and Robert Parke, Jr., "New Approaches in Studying the Life Cycle of the Family," *Demography*, Vol. 2, 1965, pp. 187-202.

[2] Michael D. Ornstein, *Entry into the American Labor Force*, Academic Press, New York, 1976.

Table 3

HIGH-PRIORITY STUDIES DERIVING FROM KEY DECISION AREAS IN THE TRANSITION TO ADULTHOOD

Labor force
Influence of the secondary schools
Migration and job search
Attitudes and career success
Segmented labor markets
Evolution of career objectives
Education and training
Nontraditional attendance patterns in postsecondary education
Persistence and transition patterns of college parallel students in two-year colleges
Formation and structuring of families
Development of career aspirations and orientations among young women
Consequences of early parenthood
Near-term marital stability

accurately understood. On the assumption that greater awareness improves the effectiveness of individual choice, research can enable young people to choose more effectively among the options society offers them. For example, a college degree may be an investment whose value has diminished. If so, some who choose to go to college may be choosing ineffectively. Likewise, a person's initial job choice may represent an investment of unknown value in terms of the experience or training it affords and the career path along which it leads.

One major focus of our research agenda, then, is on *how, why, and for whom options become foreclosed during the pivotal years immediately following high school, and what social institutions can do to expand and enhance options.*

People's actions of course affect the lives of people around them. Personal decisions during those pivotal years produce collective social effects that may become issues of public policy. In higher education, for example, institutions' revenues tend to be closely tied to their enrollments, which depend in turn on individual college-going decisions. The financial soundness of an important national resource—colleges and universities—is thus affected by the personal decisions of individual students. Likewise, changes in the practices whereby families are formed, structured, and dissolved are bound to have major social and economic ramifications, including demands imposed on welfare and other public agencies. A young person forming a family takes on general responsibility for another adult and possibly children. Dissolution of a family realigns these responsibilities in ways that affect all family members and may shift part of these responsibilities onto society. When both spouses work, they may create needs for new means of socialization and child care. Public

policy also must deal with the social effects of the increased incidence of parenthood without marriage and of single parenting, and the increasing number of women who combine work and childrearing.

Individual choices may also impose aggregate consequences through the medium of markets and public institutions. Private colleges, the all-volunteer army, and the civil service depend on regularity in the aggregate pattern of individual choices. As patterns of choice shift, their effects may be so widespread and intense as to pose major public problems. Private colleges, if forced to increase tuitions, may fail to attract enough students to remain solvent. An all-volunteer army depends on enlistees, and the civil service must attract recruits. Specialized labor markets—for teachers, lawyers, engineers, and so forth—are susceptible to swings of under- and oversupply, depending on young people's career decisions (typically made several years earlier) as they interact with the state of market demand.

Consequently, the second major focus of our research agenda is on *the collective effects engendered by individual responses to the options granted at this stage in the life cycle.*

The interdependence of a person's decisions early in the life cycle poses a dilemma for researchers. On the one hand, narrowly focused analyses may exclude important influences on the aspect of individual behavior being studied. On the other hand, broadly conceived analyses are inefficient from the standpoint of a policymaker concerned with a specific relationship. For example, a policymaker concerned with the effect of a specific student financial aid program on access to higher education has little use for information on the origins of young women's attitudes toward going to college. But a policymaker concerned with equality of educational opportunity must consider both financial impediments and the more general influence of socialization in shaping women's aspirations (hence, their options).

In view of this dilemma, we have clustered research topics that involve closely related aspects of *transition behavior* into three research domains that correspond to the three decision areas described above (see Table 3). These research domains are: (1) labor market experiences and career success, (2) higher education, and (3) the circumstances of personal and family life. Each is concerned with a major aspect of the transition into adulthood.

The research-oriented reader may be disturbed at the artificial lines we have drawn to separate what are admittedly interdependent studies. Such misgivings are understandable; our governing motive, however, has been to simplify matters for the policymaker, whose immediate task is to deal more with concrete problems than with the analytical questions that underlie them.

III. LABOR MARKET EXPERIENCES AND CAREER SUCCESS

The pursuit of meaningful and rewarding work is a large part of "the pursuit of happiness," but for many young men and women today the pursuit takes place on a treadmill. They are frequently unemployed, often for prolonged periods, and when they do find a job, it is often one that offers few material or intrinsic benefits and little opportunity for advancement.

A wide variety of ongoing programs are aimed at smoothing the transition from school to work. There is, moreover, no dearth of policy prescriptions, ranging from reform of elementary and secondary education to improve students' working prospects, to a fundamental redistribution of power to eliminate the "exploitation" of labor said to be inherent in a "capitalistic" system. Knowledge is so limited, however, on how individuals progress in the labor market and what influences their career paths, that we can neither judge the effectiveness of existing programs nor anticipate the likely effectiveness of proposed new ones.

It would be misleading to view the labor market status of an individual in the late teens or early twenties as a valid indicator of lifetime economic success or even of career prospects (the 20-year-old working as a dishwasher, for example). The NLS would have to be continued into the mid-1980s before such labor market outcomes could be accurately measured. Moreover, students who go directly from high school to work (the only segment of the NLS sample for whom very much occupational data are yet available) hardly provide a representative sample of all high school graduates, although the former segment does reflect a target group for certain public policies. Nonetheless, the NLS data available in the interim can illuminate people's initial steps along career paths and identify the factors that influence their progress.

The studies described in this section have been tailored to the existing public NLS file, which contains virtually no specific locational information (i.e., the specific area(s) or labor market(s) in which the respondent has lived or worked). The absence of such information, of course, imposes severe limitations on studies of employment and migration, since there is no way of assessing the specific local labor market context(s) within which the person's talents come to be matched with an employer's requirements. For example, it is not possible to distinguish between the experience of a respondent living in metropolitan Houston (where unemployment may be low) and an equally qualified one living in metropolitan St. Louis (roughly the same size, but where unemployment may be high).

Prior to commencing these studies, we recommend that NCES examine the feasibility and desirability of preparing a special *place-oriented version* of the NLS data. That version should fill this information void and be used for all studies in which local labor market conditions figure prominently as a contextual variable.[1] For example, if respondents' locations on successive waves of the NLS were coded

[1] Confidentiality could be preserved by deleting other identifying information that is unnecessary for these studies, e.g., references to schools attended or their characteristics.

to the metropolitan area level,[2] it would be possible to relate respondents' behavior and job search outcomes to variable labor market characteristics that prevail at the local level.

VALUE OF EDUCATION AND TRAINING ALTERNATIVES

In the traditional view of labor markets, people are rewarded according to their productivity, as determined by their general abilities and specific skills. Education and training are the primary vehicles for enabling young people to gain economic self-sufficiency. The role of public policy, therefore, is to provide those vehicles. Because education and training are expensive, questions of comparative effectiveness and efficiency naturally arise: What do different types and amounts of education or training contribute to the realization of individual potentialities? How do these contributions vary with students' characteristics and the economic, political, social, and institutional environments in which they study and work? Do education and training beyond secondary school provide sufficient returns (as measured by the career success of those who engage in them) to justify their continued existence? Which among the available options provide the greatest "rate of return"? For what types of people? In what circumstances? How do exogenous factors (e.g., economic conditions) and government policies (e.g., financial assistance programs) affect a person's education and training options and their relative rates of return?

These questions stem from clusters of issues mostly centered on the "issue exploration" and "problem identification" stages delineated in Sec. II. They need to be addressed for all forms of education and training, particularly those outlined below.

• Influence of the Secondary School

We assign high priority to the study of the secondary school. The influence of students' secondary school experiences—particularly their curricula, but also the size, student mix, resources, and other attributes of their schools—on their labor market outcomes has become a major educational policy issue. The notion is widely accepted that high schools have been overly concerned with preparing students for college and have therefore failed to equip large numbers of their graduates with saleable skills. A number of reforms, primarily in the direction of increased vocational, cooperative, or career education, have been proposed and some have been implemented.

These proposals give rise to policy issues such as these:

- Do vocational graduates obtain jobs related to their training? If not, why not?
- Do the graduates of academic and general programs who enter the labor market after high school obtain different kinds of jobs, earn more or less, and suffer more or less unemployment than vocational graduates?

[2] Standard Metropolitan Statistical Areas (SMSAs), as defined by the federal Office of Management and Budget; labor market areas as defined by U.S. Department of Labor in *Employment and Earnings: States and Areas*, 1939-1972.

- To what extent do students' characteristics (ability, family background, race, sex, attitudes toward work, career aspirations) influence their labor market outcomes?
- Do a school's characteristics (e.g., its resources, programs, staff, student body) affect the subsequent employment experiences of its graduates? If so, which characteristics have what effects?
- In the most general terms, in what ways do a young person's preparatory experiences affect the probability of his or her becoming a successfully functioning adult in the economic domain?

This analysis should concentrate on students who enter the labor market (i.e., are employed at or are seeking full-time jobs) after graduation from high school, in order to focus on the transition from high school to work. Dependent variables (each of which is measured at successive points in time) include:[3]

- Wage rate (73Q50b, 73Q56b, 74Q78, 74Q95)
- Hours of work (73Q50a, 73Q56a, 74Q77, 74Q94)
- Unemployment during previous year (73Q58, 74Q97-99)
- Job satisfaction (73Q51, 74Q79)

These outcomes may be simultaneously determined at a given time; for example, a person's job satisfaction may depend on wages. They may also depend on outcomes previously achieved, as when a person's wage in October 1974 depends on the wage in October 1973. People's personal characteristics and secondary school experiences may also affect their labor market outcomes, both directly and indirectly, through prior labor market experiences. Owing to these interactions, the influence of the secondary school should be estimated with a block recursive model in which the set of dependent variables at any time is expressed as functions of their previous values, intervening experiences, personal characteristics, and secondary school experiences.

The inclusion of variables measuring the general labor market conditions confronted by each person would substantially improve the quality of the estimates. In the absence of such data, it would be necessary to assume that labor market conditions in cities of a given size in a given region were approximately the same. The sample would then be stratified by region and city size, and separate analyses of the data for those in each stratum would be undertaken.

Independent variables would include measures of the respondent's background (e.g., parental socioeconomic status (SES) and aspirations for respondent, respondent's ethnicity, ability, sex, and perceived quality of high school). Additional independent variables of interest in this study include:

- High school program (72Q2, 72Q6)
- High school grades (72Q5)
- Guidance counseling (72Q11-15, 73Q85)
- Evaluation of high school (72Q11-15, 72Q18-19, 73Q85)
- Life goals (72Q20, 73Q20, 74Q148)
- Marital status (73Q7a, 74Q105)

[3] The terminology in parentheses which follows each variable refers to the year in which the question was asked, followed by the question number.

- Postsecondary training experiences (73Q21, 73Q43, 74Q58, 74Q66)
- Usefulness of high school training (73Q60-63)
- High school racial mix (74Q150-152)

Virtually all questions contained in the school questionnaire and counselor questionnaire are candidates for inclusion in this study.

Although this study could be undertaken with the data available through the second follow-up (fall 1974), it would be advisable to defer it at least until the third follow-up data (fall 1976) become available. Those data will be a more valid gauge of a respondent's career progress, and hence a sounder basis for assessing the effect of the secondary school on labor market outcomes. Additional follow-ups of the Class of 1972 would provide yet further improvements.[4]

On-The-Job Training

On-the-job training (OJT) ranges from the development of narrow, highly specific skills (e.g., the operation of a turret lathe) to broad general education programs (e.g., management trainee or internship programs). The rate of return to OJT is said to be high, but little is known about the criteria employers use in deciding whether to give OJT to an employee, or about the distribution of OJT opportunities among employers, industries, and occupations. These uncertainties pose issues of access and equality of opportunity.

More specifically, is OJT equally accessible to rich and poor, whites and blacks, males and females? Are opportunities to apprenticeship programs open to all? What factors affect the amounts and types of OJT that different types of people obtain? Does the minimum wage inhibit OJT opportunities? Would federal programs that compensate employers for providing OJT (e.g., the JOBS program of the late 1960s or the Manpower Development and Training Act) improve people's career prospects? What do the effects of different types and amounts of OJT on individuals portend for cooperative education programs? What is the rate of return to OJT in various occupations?

The NLS can furnish data for developing the parameters of human capital models that estimate the amounts of OJT a person receives.[5] Such models can be used to analyze the amounts of OJT different types of people receive in different occupations, and to estimate the associated rates of return.

Occupational and Vocational Programs in Two-Year Colleges

The scope and variety of occupational programs in junior and community colleges have increased steadily, but little is known about the students who participate in them and even less is known about the economic consequences. Do the graduates obtain jobs related to their training? Do their unemployment rates or earnings differ

[4] Members of the Class of 1972 who went to work after high school entered the labor market just as economic conditions began a severe downturn. At present, it is impossible to determine the extent to which the effects of their secondary school experiences on their labor market outcomes were affected by the adverse economic climate prevailing during their first few years in the labor force. A replication of the NLS on, say, the Class of 1980, would enable such an analysis for a period when, it is to be hoped, labor market conditions will be more auspicious. This option is considered in further detail in Sec. VII.

[5] See, for example, J. Mincer, *Schoolings, Experience, and Earnings*, Columbia University Press, New York, 1974.

substantially from those of otherwise similar nonparticipants? What is the rate of return to short-term training programs? To one-year certification programs? To the associate of science degree? Do people with labor market experience enter occupational and vocational programs in the two-year colleges to upgrade skills related to their previous occupations, or to obtain new skills to enter different occupations?

With the data available in the first two NLS follow-ups, researchers can study the types of students who enter occupational and vocational programs in the two-year colleges. By the third follow-up survey, researchers can analyze the initial labor force experiences of program participants.

Proprietary Schools

Private, for-profit, postsecondary training institutions became the focus of federal policy concern when the Education Amendments of 1972 extended eligibility for federal financial assistance to their students.

These institutions number more than 10,000 and annually enroll over three million students; their annual gross revenues are estimated to exceed $2.5 billion. Some have been accused of unethical or illegal practices ranging from the provision of inadequate facilities to outright fraud. Rates of default on federally insured loans to students in proprietary schools have been very high. Yet public institutions have been told to emulate their programs and practices on the grounds that they have met the test of the marketplace. Entry to many occupations (e.g., barber, beautician, real estate broker) requires a license, and the license often depends on completion of a proprietary school program.

Issues of access, equal opportunity, and the efficiency of federal student financial aid programs abound in this area, yet little is known about proprietary schools, their programs, the students they serve, and their influence on career outcomes. Even less is known about the factors that affect students' decisions to enter a proprietary program, whether there are serious barriers to entry, choice, or persistence and, if so, how they affect different types of students. What are the rates of return to students? How do the rates compare with those of similar programs in the two-year colleges? Has federal assistance to proprietary school students improved their access? Their career prospects? Are there gaps in the federal financial aid programs? If so, what kinds of students are affected and how?

The NLS makes it possible to analyze the proprietary school programs entered by the NLS students and compare their subsequent labor market experiences with those of NLS students who did not enter postsecondary training programs.

Manpower Programs

The federal government is involved in a number of programs aimed at providing employment, skill training, and other manpower services to the unemployed and the underemployed. Except for the Neighborhood Youth Corps, these programs are intended for persons out of school. In FY 1974 they served over 1.9 million clients, about 39 percent of whom were 16 to 21 years old, at a cost exceeding $2.1 billion.

The effect of these programs on clients' career prospects is a major policy issue. They have been criticized as "make-work" programs that do not offer meaningful training, do not enhance employability, and do not equip participants with skills in current demand. And some—most notably the Manpower Development and Train-

ing Act programs—have been accused of extensive "creaming," i.e., concentrating their efforts on people with stable employment histories.

The issues therefore fall into the two broad categories of efficiency and access. Do participants obtain jobs related to their training? Do the programs improve their subsequent earnings, unemployment rates, and prospects for advancement? What kinds of training, in what amounts, seem most effective for what kinds of persons? How do participants compare with nonparticipants? How do participants in one program compare with those in others? Why do people with poor labor market prospects neglect to enter such programs?

Analysis of NLS students who enter the programs can illuminate the issue of effectiveness. Access can be examined by analyzing the factors that impelled students to enter programs. The differences between programs (e.g., stipends or salaries, type and duration of training offered) need to be considered in either case.

Labor Market Perceptions and Expectations

A person's perceptions of what the labor market offers, what he or she can achieve, and what he or she must do to attain personal economic objectives are critical influences on the person's future behavior and subsequent satisfaction with its consequences. The accuracy of those perceptions and, consequently, the quantity and quality of the information on which they are based, are thus major determinants of success in the person's working life. Yet there is evidence that many young people have an inadequate understanding of the labor force and labor market.[6]

The importance of labor market perceptions and expectations has long been recognized. For example, some analysts have argued that, among the disadvantaged, social forces channeled through the family, the neighborhood, and the peer group, along with the absence of success models, severely constrict young people's labor market perceptions and expectations and inhibit their emergence from poverty. However, the combined influence of the career education movement and the work of Coleman[7] have recently focused public debate on youths' perceptions of the world of work.

It is said that because schools are age-segregated institutions, isolated from the rest of society and, particularly, from the world of work, students lack the opportunity to assume responsibility or to become acquainted with the obligations of holding a job. They have no access to basic information on what people in different occupations do or what rewards they receive. As a result they leave schools with inadequate information and erroneous perceptions of work and find themselves unable to function in the real world.

There has been no dearth of proposals designed to fill this gap. They range through vocational education, occupational counseling, career education, work/study, workplace education, reduction in the compulsory school attendance age, and educational entitlements. What is remarkable is the absence of empirical analysis of either the underlying thesis or the proposed responses. Yet there is a wide variety of natural processes that provide useful data for shaping plans and anticipating the likely consequences of policy alternatives.

[6] Lois B. DeFleur and Ben A. Menke, "Learning About the Labor Force: Occupational Knowledge Among High School Males," *Sociology of Education*, Vol. 48, Summer 1975, pp. 324-345.

[7] James S. Coleman, *Youth: Transition to Adulthood*, Report of the Panel on Youth of the President's Scientific Advisory Committee, University of Chicago Press, Chicago, 1974.

Students have always had considerable connections with work, by means of part-time or seasonal jobs, and a larger fraction than ever before seem to be maintaining such connections. In the 1970s, for example, the statistics for male students show that about 30 percent of 14-to-17-year-olds, about 45 percent of 18-to-19-year-olds, and over half of the 22-to-24-year-olds were working, mostly part-time. Young women follow basically similar patterns, although homemaking replaces paid employment for some.[8]

The purpose of this study is to test the validity of the hypothesis that youths' career paths improve with exposure to the world of work. The analysis should focus on the labor force experiences of NLS youth with work experience while in high school or college, comparing their labor force outcomes with those of NLS youth who did not work prior to leaving school.

MIGRATION AMONG LABOR MARKETS

Migration appears to perform two broad functions in society. First, it acts as an aggregate mechanism of adjustment, transferring labor from areas where jobs are scarce or wages low to areas where workers are scarce or wages high. By doing so, it helps achieve a more efficient allocation of the labor force. Second, migration broadens people's geographic scope of opportunity and offers them a major escape route from disadvantaged circumstances.

Nationally, the propensity to migrate peaks during the ages through which the NLS cohort is passing, a reflection of the changes, adjustments, and initial commitments that accompany early adulthood. Large numbers of young people are completing their formal schooling, serving in the armed forces, marrying and forming families, and entering or progressing within the labor market. What a person experiences during the first few years in the labor force will powerfully influence the course of that person's occupational career and overall success in matching skills to a particular job. In this regard, migration can be viewed as an optional means of broadening the geographic scope of opportunities that are available to persons disadvantaged either by their limited personal qualifications or by the limited opportunities available in their local labor market. How effectively this option is used, and by whom, are matters of public concern.

Migration may improve the functioning of the labor market, but many personal obstacles impede its full and rational operation. People move, or fail to move, for multiple and complex reasons. Often their choices are marred by considerable, albeit benign, ignorance of their alternatives. Decisions about where to move tend to be guided by hit-or-miss information, frequently acquired through friends and relatives. Such information does not assure that people will migrate effectively in terms of economically purposeful objectives.[9]

Recognizing that migration represents a potentially important means of broad-

[8] In contrast, during the 1950s, just over a quarter of high school age men, about 35 percent of 18-to-19-year-olds, and less than half of 20-to-24-year-olds held jobs. Labor force participation rates by young people 18 to 24 who are not enrolled in school have hardly changed over the 20-year period. *Manpower Report of the President, 1975*, Table B6, Government Printing Office, Washington, D.C., 1975.

[9] Evidence on these points is presented in Peter A. Morrison, *Migration from Distressed Areas: Its Meaning for Regional Policy*, The Rand Corporation, R-1103-EDA/FF/NIH, October 1973.

ening opportunity suggests that there may be an important role for public policy in: (1) helping non-college-attending youth make better informed and more effective choices within the labor market, and (2) identifying barriers to such choice during the first few years of work.

- **Migration and Job Search**

We classify migration and job search as a high-priority study. The purpose of this study is to identify barriers that limit migration's effectiveness among non-college-attenders and furnish scientific guidance for designing policies to strengthen the decisions that lead to or discourage migration.

The study addresses the following specific questions:

1. Do the near-term labor market experiences of migrants differ systematically from those of their nonmigrant counterparts, with other relevant variables controlled?
2. Do advantages (disadvantages) conferred by superior (inferior) credentials for employment affect migrants and nonmigrants at destination equally?
3. Do attitudinal differences between migrants and nonmigrants, particularly the orientation toward occupational advancement and willingness to move, favor differential outcomes?
4. Do migrants' initial orientations toward occupational advancement interact with their early experience in the destination labor market and affect subsequent economic success?

The presently collected NLS data can furnish four basic types of information for answering these questions.

1. Recent Migration and Type

(a) Recent migration and nonmigration can be determined using the following variables:
- — Between 1972 and 1973: Whether the place where respondent lived in October 1973 is the same as the place where respondent lived as a high school senior (73Q6b).
- — Between 1973 and 1974: Whether the city or community where the respondent lived in October 1974 is the same as the one where the respondent lived a year ago (74Q5).

(b) Distance migrated can be determined with the following variables:
- — Between 1972 and 1973: 73Q6b (moves of $\geq$ 50 miles only)[10]
- — Between 1973 and 1974: 74Q6.

(c) Type of move, determined as follows:
- — For 1972-1973: Compare 72Q95 with 73Q6a to derive relevant types (e.g., from small city or town to large city, from city to suburb, and so forth).
- — For 1973-1974: Compare 73Q6a with 74Q4.

[10] Note: For 73Q6b, the categories "less than 50 miles" and "same place . . ." should be combined since use of the term "place" in that question is likely to have elicited responses combining local residential mobility with short-distance migration.

(d) Reason for migrating:

— Use 74Q7 to distinguish job-related moves (response category 1) and all other moves (response categories 2-4).
— Within job-related category, distinguish migrants who left to obtain a better job (responded "very important" or "somewhat important" to 74Q96o).

2. Willingness to Migrate

(a) Duration of residence (72Q89) is an important index of social ties to the respondent's present location and should, therefore, be controlled (categorize as: $\leq$ 2 years, 3-4 years, $\geq$ 5 years but not entire life, entire life).
(b) Willingness to migrate can be measured both directly and indirectly:
— Direct measures are:

Reference Year		
1972	1973	1974
72Q34	—	74Q102

— Indirect measures are:

	Reference Year		
Indicator	1972	1973	1974
Willing: (responds "very important")	72Q20 i	73Q20 i	74Q148 i
Reluctant: (responds "very important")	72Q20 h	73Q20 h	74Q148 h
Reluctant[11]:	73Q54b (7)	73Q48b (7)	74Q91a (g)

(c) Change in willingness to migrate, 1972-1974: Compare 74Q102 with 72Q34.

3. Job Search and Labor Market Experience

(a) Whether or not respondents who planned to work after leaving high school had lined up a definite job at the time of first interview (72Q33 and 72Q78)[12]
(b) Job search methods and outcomes: 1973: 73Q59 (methods); 73Q63 (outcomes) 1974: 74Q104, 74Q84, 74Q70 (methods); 74Q69, 74Q71, 74Q72 (outcomes)

4. Work Orientation and Attitudes, and Change Therein

(a) Self-rating on personal strengths: 74Q153

[11] Restricted to those who were not currently working.
[12] Note: Precautions are necessary here since some respondents were administered the baseline questionnaire following their high school senior year.

(b)

Orientation/Attitude		Reference Year 1972	1973	1974
(i)	Job security	72Q26 f	---	74Q141 f
(ii)	Opportunity for advancement	72Q26 i	---	74Q141 i
(iii)	Self-esteem	72Q21	73Q15	74Q132
(iv)	Locus of control	72Q20	73Q15	74Q132
(v)	Work orientation	72Q20	73Q20	74Q148

Although the data available through the second follow-up are adequate to carry out this study, we recommend that it be based on the third follow-up data, which extend the period of postsecondary observation from 2 to 4 years.

STRUCTURE OF LABOR MARKETS

The traditional view that education and training are investments in oneself that lead to higher productivity and improved career prospects has been challenged on a variety of grounds. Some critics suggest that the quality of a person's education does not have a significant direct effect on economic prospects.[13] Others argue that education and training contribute to earnings by inculcating attitudes and behavior appropriate to functioning in an alienating work environment[14] or by screening out people whose attitudes or behavior are considered undesirable by employers.[15]

A more fundamental challenge to the notion that education improves career prospects is the argument that social groups or classes are segmented in labor markets in the sense that they face objectively different labor market situations that systematically condition their choices and restrict their behavior.[16] Segmentation theory disputes the assumptions that workers are evaluated in terms of their individual characteristics, that they have a wide range of options in jobs, education, and training, and that they therefore have extensive opportunities for occupational and social mobility. Segmentation theory claims instead that the labor market is fragmented into semi-isolated submarkets and that "those who fall into one or another of these *submarkets* have different patterns of work life which emerge not from individual choice or individualized employer evaluation but largely from the structure of the labor market for particular sets of jobs."[17] Interaction between employer interests and employee behavior is important here.

Finally, the ongoing flood of baby boom children through the higher educational system and into the labor market appears to have far outpaced the demand for college-educated workers. The inundation of college-educated job seekers has led to

[13] For example, C. Jencks et al., *Inequality*, Basic Books, New York, 1972.

[14] For example, H. Gintis, "Education, Technology and the Characteristics of Worker Productivity," *American Economic Review*, Vol. 61, May 1971.

[15] For example, I. Berg, *Education and Jobs: The Great Training Robbery*, Praeger, New York, 1970.

[16] For example, D. Gordon, M. Reich, and R. Edwards, "A Theory of Labor Market Segmentation," *American Economic Review*, Vol. 63, May 1973, and M. Piore, "Fragments of a Sociological Theory of Wages," *American Economic Review*, Vol. 63, May 1973.

[17] M. Carter and M. Carnoy, *Theories of Labor Markets and Worker Productivity*, Discussion Paper 74-4, Portola Institute, Menlo Park, Calif., August 1974.

declines in the salary gap between new college graduates and comparable non-college-educated workers.[18] Substantial numbers of college graduates are entering occupations beneath their status, bumping non-college-educated workers to lower-level positions. Some have suggested that the declining rate of return to college education portends major shifts in society's view of higher education and, perhaps, in the social system itself.[19]

These challenges strike at the fundamental rationale for public support of educational training institutions and programs at any level of attainment. The problems posed are centered on the "issue exploration" and "problem identification" stages, and the NLS data would yield insights into the merit of these views.

- **Attitudes and Career Success**

We rate this as another high-priority study. Some people allege that the educational system is a massive screening device, sorting people on the basis of their attitudes and backgrounds; that educational attainment is merely an indicator of a person's docility or social status; and that employers value these attributes, reserving the best jobs for people with diplomas not because of their abilities, but because the educational system has certified them as possessing the "right" attitudes.

Several hypotheses have been formulated to explain why employers should value these "certified" attitudes, but the implications for federal policy are basically the same in every case: If employers value docility and other traits making for "manageability," then neither measures that encourage individual creativity, initiative, and independence in elementary and secondary schools, nor vocational and occupational education at any level will improve career prospects.

Research is needed to test this view and identify more precisely the problems it poses for education and labor market policy. The NLS data include a wealth of attitudinal measures as well as measures of ability and specific skills. They also include measures of family background and socioeconomic status. Accordingly, they provide a basis for testing hypotheses on the factors influencing labor market success.

Prior to the advent of the NLS, the possibilities were scant for directly testing the screening hypothesis. Data collected on the Class of 1972 permit observation of large numbers of people over time who are predominantly in the school-to-work transition phase of their lives. If the criterion variable were some measure of on-the-job success (e.g., earnings, stability, advancement prospects, satisfaction) and the predictor variables were the measures of background, ability, exposure to education and skill training, and job-hunting practices (all of which are more fully described elsewhere in this report), then the addition of attitude measures would enable the estimation of the independent effects of "desirable" and "undesirable" personal qualities on individual career outcomes. The following items seem to us promising candidates for inclusion in an index of work attitudes.

[18] R. Freeman, "Overinvestment in College Training," *Journal of Human Resources*, Summer 1975.
[19] J. O'Toole, "The Reserve Army of the Underemployed," *Change*, May 1975.

Trait	Spring 1972	Fall 1973	Fall 1974
Industriousness	Doesn't do homework (Q7) Part-time hours worked per week (Q8)		
Docility	"Find it hard to adjust to school routine" (Q17)		Satisfaction re importance, challenge of current job (Q79)
	"Most required courses a waste of time" (Q19)		Importance of moral integrity in life (Q135)
	Importance of originality, independence, creativity in career (Q24, Q26)	Φ	Φ
			Quit job because dissatisfied with supervisor (Q96)
Conservatism	Importance of working to correct societal inequalities (Q20)	Φ	
	Importance of "altruism" in career (Q24)		

NOTE: Φ indicates that the item is the same as or similar to corresponding row in preceding column.

The farther into adult life the data extend (i.e., the more follow-up interviews after 1974), the more accurate would be any study of the influence of attitudes on career success. This argues for delaying the studies described here until the fall 1976 data become available and for even further tracking of the Class of 1972. On the other hand, an additional cohort appears less important for an adequate analysis unless one has reason to believe that there has been a sharp change in the work attitudes of subsequent generations. To control properly for exogenous influences on career success, information would be required on prospects in individual labor markets by region and size and type of community, as measured by unemployment rates, prevailing wages, and perhaps nature of industrial base. Such data are readily available from the Bureau of Labor Statistics.

As a sideline, it may be worthwhile to gain a dynamic perspective on job attitudes, since many of them are measured at more than one point in time. Holding background, ability, and other variables constant, how do differences in the nature of experiences between 1972 and the final follow-up interview—e.g., in education, work, family life—condition attitudes toward work?

- **Segmented Labor Markets**

We consider this a high-priority study. Proponents of the segmentation theory of labor markets argue that the primary unit of analysis should not be the individual employer or employee, but social groups or classes.[20] In their view, it is meaningless to debate which individual characteristics are valued by employers, and why.

[20] See, for example, Gordon, Reich, and Edwards, op. cit., or Piore, op. cit.

Rather, there are several types of jobs in the labor market, each with its distinct labor requirements and hence with its own criteria for hiring and advancement, supervisory procedures, working conditions, and wage levels. The primary function of social, and particularly educational, institutions is to "condition" or coerce workers to accept the legitimacy of the system and of their place within it. These theories raise fundamental issues regarding the role of education in society. And they question the notion that education and training can promote occupational mobility, social mobility, and the equalization of opportunity. In brief, they dispute the premises underlying current public policies regarding both education and labor.

Jobs in the "primary" labor market(s) are characterized by relative job stability, relatively high wages, and a pattern of wage progression. These jobs are full-time and year-round and require skills developed through practice and experience. Promotion is often governed by seniority. Accordingly, workers in the primary market(s) tend to exhibit stable employment patterns: few job changes, little unemployment, steady wage progression, and so on.

Jobs in the "secondary" labor market require little training and few skills; they can be quickly learned. They offer low wages and fringe benefits, poor working conditions, and little opportunity for promotion. Wage profiles tend to be flat in secondary market jobs. They are often part-time or seasonal jobs. Since job stability alone in this sector offers no rewards—little is to be gained through experience and seniority—workers change jobs frequently and are often unemployed or "between jobs."

Few empirical tests of the existence of market segmentation have been conducted heretofore, but the NLS data provide an opportunity to do so. The data identify people's labor market experiences, particularly wage and mobility patterns and unemployment, and their backgrounds and personal characteristics. The hypothesis that certain social classes or groups (e.g., women, minorities) are "directed" toward certain types of jobs (independent of their abilities, skills, and education) and that they are "prevented" from moving to other types of jobs can be directly tested with these data.

The essence of the segmentation hypothesis is the assumption that workers are sorted between the primary and secondary markets on the basis of their social class background or such ascribed characteristics as race, sex, or ethnicity. These factors, not abilities or skills, are what matter. Consequently, to determine the "quality" of employment experiences, a test of the hypothesis consists of estimating the relative importance of variables that measure people's social origins vis-a-vis those that measure their abilities and skills. Dependent variables would include:

- Wage rate (73Q50b, 73Q56b, 74Q78, 74Q95)
- Hours of work (73Q50a, 73Q56a, 74Q77, 74Q94)
- Unemployment during previous year (73Q58, 74Q97, 74Q99)
- Job satisfaction (73Q51, 74Q79)
- Number of job changes (73Q58c, 74Q98)

These may be analyzed separately, or combined in the form of an index that locates a person on the primary/secondary worker spectrum.

Independent variables would include measures of the respondents' backgrounds (e.g., ethnicity, parental SES, sex) and abilities. Additional independent variables of interest in this study are:

- Life goals (72Q20, 73Q20, 74Q148)
- Postsecondary training experiences (73Q21-23, 73Q43, 74Q58-66)
- Reason for unemployment (73Q48b, 73Q54b, 74Q91a)
- Job-hunting method (73Q59, 74Q104)
- Relationship of training to work (73Q60-63, 74Q67-73, 74Q82-83)

Although this study, like the secondary school study described earlier, could be undertaken with the data available through the second follow-up (fall 1974), it would be advisable to defer both studies at least until the third follow-up data (fall 1976) become available (for the same reasons given earlier).

- **Evolution of Career Objectives**

We consider this study to be a high-priority study. It is claimed that young people's attitudes toward work have changed fundamentally. They are said to be less interested in the "careerist rat-race," more concerned for the nonmaterial rather than strictly material returns of work, and more anxious to obtain jobs that offer high intrinsic rewards. As evidence for this hypothesis, surveys have found that young workers are, in general, less satisfied with their jobs than older workers. As further indications of a turn away from economic objectives and toward the subjective rewards of work, observers have also pointed to the declining proportions of new high school and college graduates who entered white-collar jobs over the period 1960-1972, and the lower prestige of the white-collar jobs they did enter.

There are grounds for disputing that hypothesis, however. Young workers may be dissatisfied because they tend to have worse jobs—both pay and intrinsic benefits tend to go to workers with experience and seniority—and a recent Labor Department synthesis of the literature found no trend over time in the fraction of young workers expressing dissatisfaction.[21]

Moreover, the wave of baby boom children passing through college and into the labor force has engulfed those labor markets that the college-educated have traditionally entered. The career prospects of the highly educated have declined, as have those of the increasing numbers of college graduates who are now competing for jobs that were once the preserve of the less well educated. This raises the question of whether young people are less interested in economically rewarding jobs, or whether they are merely less sanguine about the prospects of getting them.

If work attitudes have in fact changed, it is unclear what they portend for the future, but they may have profound implications both for individuals and for society. But a person's job satisfaction is certainly related to the match (or mismatch) between aspirations and achievements. Research is needed to explore the issues and identify problems.

How do a person's aspirations evolve over time and in the light of experience? Do they bend to harmonize with the person's actual line of work and record of accomplishments, or do they remain in the mind's eye, fixed and unyielding, as distant goals forever to be sought regardless of the rate at which the person progresses in the job he or she already has? How do exogenous factors, such as labor market conditions, influence aspirations? Are such influences uniform for all types of people, or do they vary from one type to another?

[21] R. Quinn, *Job Satisfaction: Is There a Trend?* Manpower Research Monograph No. 30, U.S. Department of Labor, 1974.

The NLS data can be used to construct measures of a respondent's career attitudes, aspirations, and objectives at various points in the life cycle. Analyses of changes in these measures over time can illuminate these issues.

The objective of this substudy is to isolate the independent influence of various hypothetically causal variables on changes in career aspirations. As an illustration, consider all respondents who have expressed similar career aspirations (72Q25) on the baseline survey: "[Describe] the kind of work you would like to do." Choice of occupation obviously is influenced by numerous factors the respondent believes to be associated with a particular kind of job—e.g., earnings, fringe benefits, security, working conditions, advancement opportunities, ability to use training, challenge and interest, and so forth. It is impossible to conflate all such factors into a valid index of job desirability, but many of them are either reflected in or correlated with the earnings attached to that job. One can score the various job targets by using a measure of the average annual full-time earnings of men (women) at prime working age (say 35 to 44) who are engaged in that occupation. (Such data are available from the Census of Population.)

To measure changes in career aspiration, one could compare 72Q25 with its counterpart one and two years later (73Q19, 74Q142): "What kind of work will you be doing when you are 30 years old?" (same list of occupations). Since the answers to these 1973 or 1974 questions can be determined for members of the sample stratified by original (1972) career plans, and stratified for sex as well, differences (positive or negative) between the earnings-scored choice of future occupation in 1972 and 1973 or 1974 serve as indicators of change in career plans.

At this point, one could use multivariate statistical estimation techniques on each of the stratified samples. Independent variables would include measures of the respondent's background (e.g., ethnicity, parental SES, their aspirations for respondent), ability, and high school and early work experiences (e.g., grade point average, major, peer influences, counselor contacts, part-time jobs). Other independent variables of interest in this study would be:

- Life goals in 1972 (72Q20) compared with 1974 (74Q148)
- Education and training between 1972 and 1974 (selected variables from 73Q21-44b, 74Q9-66)
- Satisfaction with education and training between 1972 and 1974 (73Q45, 74Q38)
- Impediments to further education in 1974 (74Q144)
- Labor force experience between 1972 and 1974 (selected variables from 73Q48a-63, 74Q74-99)
- Principal occupation between 1972 and 1974 (73Q49, 73Q55, 74Q76)
- Average earnings between 1972 and 1974 (73Q56b, 73Q50b, 74Q78)
- Satisfaction with work between 1973 and 1974 (73Q51, 74Q79)
- Whether living more than x miles from original residence in 1974 (74Q6)
- Family status in 1974 (74Q105, 106, 111, 112, 118)
- Financial status in 1974 (74Q113-117)
- Local labor market conditions in 1974 (assumes that a place-oriented version of the NLS data, as described above, is available).

Further tracking of the Class of 1972 (i.e., beyond 1976) would permit estimation of the congruence between career plans and prime-age career attainments, as conditioned by intervening experiences. Surveys of other cohorts, if separated sufficiently in time, would permit a comparison of how career plans are developed by young persons facing an altered state of economic and social realities, and who operate from a potentially different set of generation-specific goals.

Because of the complex interactions and chains of causality inherent in a study of this subject, appreciable theoretical research in model construction would need to precede empirical estimation.

IV. HIGHER EDUCATION

The higher education system serves a variety of purposes: individual development, enhanced private and public well-being, equalization of life chances through education, generation and transmission of culture, and the preparation of trained manpower to meet the nation's needs. Many of the issues those purposes give rise to are amenable to research based on the NLS data. In particular, recent and likely future developments in three areas—student financial aid, veterans' educational benefits, and the two-year colleges—render them subjects of major concern to public policymakers. The studies outlined below concentrate on these areas.

STUDENT FINANCIAL ASSISTANCE

Public decisionmakers must deal with a variety of issues having to do with student financial assistance for postsecondary education. Despite the growth and current magnitude of federal and state student aid programs, there is widespread concern that they have failed to achieve their objectives. For example, since the Higher Education Act of 1965 was passed, national efforts have focused on programs to improve educational access, choice, and opportunity for needy students. Yet the rates at which lower- and moderate-income youth participate in formal postsecondary education remain substantially below those of youth from higher-income families.

In responding to student aid issues, policymakers face the problem of choosing patterns and levels for government support of postsecondary education from among an array of legislatively authorized and proposed programs. These programs differ in assistance mechanisms (grants, loans, work), award criteria (need, income, cost), and administrative and delivery mechanisms (through educational institutions, through lending institutions, directly to students). Moreover, they operate in a complex environment that includes public colleges, universities, and vocational-technical centers; private, nonprofit colleges and universities; and proprietary institutions. The students also differ in personal characteristics (race, sex, income, ability), aspirations and goals, educational objectives, location, noneducational alternatives, and so on.

The search for the best policies raises many questions: How would various discretionary budget levels and resource allocations among programs affect postsecondary enrollment rates and patterns? How would changes in needs-analysis systems affect the distribution of financial aid among students and among institutions? What are the effects of expanding eligibility for assistance to students in noncollege forms of postsecondary education? How do funding levels and divisions between funding programs influence the flow of students and financial resources to various sectors of the postsecondary education system?

In terms of the stages delineated in Sec. II, these questions relate to issues centered on "problem identification" and "evaluation." At present, those questions cannot be answered, because we do not understand students' behavior thoroughly enough to predict their responses to new policies or changes of policy. The studies

outlined below are aimed at improving knowledge of the ways in which student financial aid affects postsecondary enrollment rates and patterns.

- **Nontraditional Attendance Patterns in Postsecondary Education**

The "traditional" student enters college on a full-time basis directly from high school and either goes on to a degree or drops out with no intention of returning. There are many "nontraditional" attendance patterns, however; deferred entry, part-time enrollment, and "stopping out" are common, and students may adopt them for a variety of reasons. Of particular concern is the possibility that financial pressures, or inadequacies and rigidities in financial assistance programs, may force some students into nontraditional attendance patterns or may preclude others from moving away from the conventional toward more individually tailored patterns.

Which students go to college part-time? Why? Did money problems and inadequate financial aid programs preclude full-time attendance? Why do students who did not go on to college directly from high school subsequently enroll? Why did they not enter college directly from high school? Do deferred entrants have the same financial aid opportunities as do direct entrants? To what extent do rigidities in financial aid programs limit access to higher education among students who do not enter college directly from high school? What kinds of aid are available to part-time students? To deferred entrants?

During the period when baby boom cohorts swelled enrollments, the problems of meeting a ballooning demand for higher education by traditional students monopolized the attention of both policymakers and researchers concerned with higher education. Until quite recently, the problems of nontraditional students have received little attention and little is known about them. Accordingly, this study is essentially an exploratory analysis that will emphasize descriptions of various populations of interest and develop hypotheses, rather than formally test hypotheses.

If factors exogenous to students influence their attendance patterns, such as the accessibility of colleges and the availability of financial aid, one should observe substantial similarities among students across attendance patterns. The reverse should be true if factors inherent in students (e.g., aspirations, ability) dominate those patterns.

It seems reasonable to begin by inquiring whether different types of students (distinguished by personal characteristics and family backgrounds) exhibit different attendance patterns. For example, the NLS sample might be divided into four broad groups: full-time direct entrants, full-time deferred entrants, part-time college students, and those who did not go to college. Cross-tabulations or discriminant analyses could then be used to explore similarities and differences among the groups.

The next step in the analysis would depend on the findings: If essentially similar students exhibit different attendance patterns, the question arises of whether and in what ways exogenous factors influenced their college-going decisions. The accepted public policy objective of equality of educational opportunity requires that existing programs be revised or new programs developed to alleviate the effects of such exogenous factors. If differences among students seem to explain their attendance patterns, however, attention would shift to the question of why those differences affected their college-going decisions and whether public policy should be concerned with these differences.

In keeping with the exploratory nature of this study, these analyses should be conducted for the NLS sample as a whole and for various subgroups of the sample. Stratifications by sex, race, income, or ability are clearly needed. Stratifications by other variables and by combinations of these variables should also be considered.

Comparisons of NLS students' attendance patterns can be undertaken with the data obtained in the first (fall 1973) and second (fall 1974) follow-up surveys. Data from the third follow-up survey (fall 1976) will allow more precise and more detailed analyses; some of the traditional students may switch to a nontraditional pattern and more observations on deferred entry and on reentry after dropping out will be available. In any event, the analysis can identify instances where financial problems induce nontraditional attendance patterns and, hence, suggest where modification of existing financial programs may be required.

Students' Decisions About College

Students' decisions to go to college reflect their perceptions of the advantages and disadvantages of attendance (the rate of return to college, in economists' jargon) and their or their families' ability to pay the costs. Student aid programs are aimed at reducing financial barriers; some (e.g., grants or scholarships) also increase the "rate of return" by reducing the costs of college as an investment. In any event, financial aid makes college more accessible.

Students' decisions are also affected by the attributes of the colleges available to them and by various personal and family attributes (e.g., ability and parents' socioeconomic status).[1] To isolate the effects of the amount and type of financial aid available, the effects of these other factors must be taken into account. The baseline and first follow-up NLS data provide a basis for developing a model that will answer the purpose. (Several past models of students' college-going behavior have produced useful results, but they all have important limitations.[2])

Students' Choice of Colleges

The important question has arisen of whether a student actually has a free choice among colleges. Some observers contend that equal educational opportunity requires more than simple access to higher education. They believe it is essential for students to have a wide choice so they can select an institution that meets their interests, needs, and abilities. Other observers value pluralism and diversity for additional reasons; and because they rightly point out that colleges' financial health (particularly private colleges) is closely related to enrollments, the influence of financial aid programs on student choice becomes a matter of public concern.

Students' Persistence in Higher Education

The Census Bureau estimates that only about 56 percent of 1971's college freshmen were seniors in 1974.[3] Similarly, the National Commission on the Financing

[1] Sandra Christensen et al., "Factors Affecting College Attendance," *Journal of Human Resources*, Vol. 10, No. 2, Spring 1975, pp. 174-188.

[2] See M. Kohn, C. Manski, and D. Mundel, *An Empirical Investigation of Factors Which Influence College-Going Behavior*, The Rand Corporation, R-1470-NSF, September 1974, and other references cited there.

[3] U.S. Bureau of the Census, *Current Population Reports*, Series P-20, No. 286, November 1975, Table E.

of Postsecondary Education (NCFPE) found that only 40 percent of two-year-college entrants and 60 percent of four-year-college entrants in 1967 had received degrees or were still enrolled in 1970.[4] Students leave college for many reasons. Some have reached limited objectives (e.g., an associate's degree); others simply find college not to their liking. But financial problems undoubtedly contribute to attrition, and the effects of financial aid on persistence in college therefore become a policy issue.

Most attrition occurs during the first two years of college, a period spanned for most of the NLS students who went on to college from the baseline survey (spring 1972) through the second follow-up survey (fall 1974). Student persistence can be analyzed with these data. The third follow-up survey (fall 1976) will extend the period covered by the data to four years after entry for most of the NLS students who went on to college. NLS students who entered college after fall 1972 (including some of those who entered in fall 1972, dropped out, and then returned) will still be in school in fall 1976. And some of those who entered college but left before fall 1972 will eventually return.

A critical consideration in any of these analyses is the student's college-choice behavior. There may or may not be some relationship between the substantially higher dropout rates for students who enter two-year colleges and the lower ones for students who enter four-year colleges and universities, and the differences in the distribution of aid awards between students in two-year and four-year colleges. There is also a complex interaction between institutional selection processes (e.g., admissions policies) and students' choice behavior that affects the distribution of students among types of institutions. The higher probability that a two-year college entrant will drop out may reflect attributes of two-year institutions, differences in the amount or type of aid received, or some factor that impelled the student to attend a two-year college in the first place. Analyses of persistence must carefully control for selection biases if their results are to be valid.

The Sibling Squeeze

The "baby boom" of the 1950s and the subsequent "baby bust" of the late 1960s are common knowledge and their impact on higher education has been widely recognized. Another fertility-related influence is little recognized and its implications have scarcely been examined: the schedule of post-1950 childbearing, which was marked by closely spaced births as well as a high level of fertility. With these cohorts now maturing to college age, that schedule is manifesting itself in a "sibling squeeze"—a rising incidence of families that have several children within the college ages at the same time.[5] For families of a given size, closely spaced births in the late 1950s now mean that the economic burden of a college education for several children is compressed into a comparatively short span of time, a fact with important implications for higher education, and particularly for student financial aid.

[4] *Financing Postsecondary Education in the United States*, Government Printing Office, Washington, D.C., 1973, p. 157.

[5] Among whites, for example, only 28 percent of second children born between 1945 and 1949 (who would be prospective college freshmen during 1963-1967) were born within 24 months of the older sibling; ten years later, this figure had climbed to 40 percent (for those who would be prospective freshmen during 1973-1977). The percentages for blacks parallel those for whites, only at a somewhat higher level.

Further details are given in Peter A. Morrison, *The Demographic Context of Educational Policy Planning*, The Rand Corporation, P-5592, February 1976.

The demographic compression of shorter birth intervals has been most intense for black and lower-income white families. Moreover, this compression will continue unabated until the early 1980s, by which time children born after 1965 (who are separated from their siblings by somewhat longer birth intervals) begin to reach college-going age.

The implications of these shifts are of some importance: The proportion of second, third, and fourth children who reach college-going age while older siblings are still in school is substantially larger now than in the past, giving rise to certain vulnerabilities for children of larger families. The financial burden facing multiple-children families in putting their children through college will grow heavier and be visited more frequently on black and lower-income families. Current needs-analysis systems attempt to take account of the financial pressures on families with multiple children in college; but inequities or inadequacies in these systems may remain and intensify as the closely spaced children of the 1950s and 1960s mature to college age.

Analysis of the rates and patterns of enrollment and the persistence of students with different numbers of siblings would provide crude estimates of the adverse effects of the sibling squeeze and a basis for assessing the adequacy of financial aid programs for softening those effects. More detailed and precise analyses could be undertaken if information were obtained on the enrollment behavior of each NLS panel member's siblings.

VETERANS' EDUCATION BENEFITS

The GI Bill has been an important source of student financial aid and, consequently, of revenue to institutions of postsecondary education. Indeed, the budget for veterans' education benefits is larger than the budgets of all other student aid programs combined. Over 1.8 million Vietnam War veterans received training benefits in FY 1975 and about 1.2 million of them attended colleges and universities. College-going veterans, 83 percent of whom were enrolled in public institutions, received over $2.6 billion in aid in FY 1975 and may receive as much as $6.2 billion in FY 1976.[6] The volume of state aid to higher education that has been stimulated by veterans' enrollments in those states that fund public institutions on an enrollment basis is unknown, but certainly large. The provision of benefits to future veterans recently emerged as a major public policy issue when the OMB recommended that the program be discontinued. The House acted to end veterans' educational benefits in October 1975. Senate approval is not expected in the immediate future. Nonetheless, the issue has been broached. To date, the debate has largely focused on the implications of the program for the military manpower system. Continuation of the program has been challenged on the grounds that its benefits to the military services do not justify its rapidly growing costs. That the program offers important benefits to postsecondary education is unquestioned, but the magnitude of those benefits has not been estimated and so they have carried little weight.

The one-sidedness of the debate raises two major policy questions for education: (1) What are the implications of terminating veterans' education benefits for postsecondary education? (2) What new programs or modifications of existing programs would be needed to alleviate the adverse impact of terminating the program?

[6] *The Chronicle of Higher Education*, October 14, 1975, p. 1.

At present, the information required to answer these questions is lacking. Ending the GI Bill clearly would impair veterans' access to postsecondary institutions and diminish their enrollments and revenues. It would undoubtedly shift some demand for student financial aid to other federal and state programs. However, enlistment behavior and veterans' college choices are not well understood. Consequently, we cannot confidently predict what prospective enlistees who would have sought veterans' educational benefits would do if these benefits disappeared, or how veterans would respond. The studies outlined below, which center on "early warning" and "issue exploration," are aimed at explicating these questions.

Enlistees' Potential Demand for Postsecondary Education

Studies of the factors that influence military enlistment have consistently shown the major importance of the availability of GI Bill benefits.[7] For example, in the latest published Gilbert Youth Survey (November 1973) the most frequently chosen enlistment incentives were "four years of college in return for four years of service," followed by "$200/month for four years of college"—essentially the program offered by the GI Bill.[8] Should veterans' educational benefits be terminated, some potential enlistees may choose instead to continue their education with support from private sources or federal or state aid. Which of these alternatives would be pursued, and by whom, is the central question, and it requires analysis of enlistment behavior.

As of the first follow-up interview in the NLS survey, over 1000 members of the panel had voluntarily entered the armed forces. Analysis of the factors that influenced their decision to enlist, taking account of their postsecondary educational alternatives and, particularly, the availability of financial support from private and public sources, can yield estimates of the importance of veterans' educational benefits in their behavior. By comparing enlistees with nonenlistees, controlling for other factors, it is possible to estimate what the behavior of enlistees would have been had they not entered the military. In combination, these analyses will provide partial estimates of how terminating veterans' educational benefits would affect the demand for postsecondary education.

Veterans' Potential Demand for Postsecondary Education

The termination of veterans' education benefits would undoubtedly impair veterans' access to postsecondary education, but how much? It is instructive that only one-third of Vietnam War veterans have chosen to use their educational benefits, and participation rates for World War II and Korean War veterans were even lower. (The participation rate would be lower still if those who enlist in order to obtain benefits were not to enlist if the benefits were ended.) Thus, termination of veterans' educational benefits appears to be moot for the large majority of those who enter

[7] See, for example, the Gates Commission, *Studies Prepared for the President's Commission on an All-Volunteer Force*, Government Printing Office, Washington, D.C., 1970; J. Johnston and J. Bachman, *Youth in Transition, Vol. V: Young Men and Military Service*, University of Michigan, Ann Arbor, 1972; and A. Fisher, *Attitudes of Youth Toward Military Service*, Human Resources Research Organization, August 1972.

[8] A. Fisher, *The Structure of Enlistment Incentives*, Human Resources Research Organization, March 1974.

the military services. Moreover, since veterans' benefits are not based on need, some veterans could turn to private or other public resources if benefits were not available. The question of how extensively termination would affect access to postsecondary education therefore requires analysis of veterans' educational activities after discharge.

Recent estimates of reenlistment rates after the first tour of duty are in the vicinity of 25 percent. The third NLS follow-up (fall 1976) should include 750 to 800 persons who are eligible for veterans' educational benefits. Since most of the NLS panel who enlisted did so when two-year tours of duty were common, a large proportion of them will have been out of the service for some time. Analysis of their participation in postsecondary education, given their alternatives, can yield estimates of the relative importance of the factors that influence their choice behavior. Comparing their behavior with the behavior of other students in the NLS panel who neither enlisted nor continued with postsecondary education after high school, and controlling for other factors, would produce estimates of the effect of terminating veterans' educational benefits on access to postsecondary education.

Effects of GI Bill Termination on Financial Aid Programs

People who would have enlisted to obtain veterans' educational benefits may turn to other sources of financial aid if those benefits are terminated. For whatever reasons they enlisted, veterans may do the same. The two groups together are likely to place substantial new demands on financial aid programs, and to some extent shut out other students who depend on the same programs. These observations give rise to several policy issues: What new demands are likely to be placed on financial aid programs if veterans' educational benefits are terminated? How effectively can those programs respond to the new demands? What program modifications or new programs will be needed?

Analyses of the socioeconomic characteristics of NLS panel members who entered the armed forces can identify the extent of their eligibility for aid from alternative programs. Combined with analyses of the choice behavior of potential enlistees and veterans, and the aid-application behavior of NLS panel members who did not enter the armed forces, these analyses can be used to forecast the demands on other programs if veterans' educational benefits are ended.

Effects of GI Bill Termination on Institutions of Postsecondary Education

Ending the GI Bill is likely to foment a near-term enrollment surge (as some potential enlistees decide to continue their education instead) and a long-term enrollment decline as the pool of eligible veterans empties. It is also likely to induce a redistribution of veterans' enrollments between higher education and the proprietary schools, among higher education sectors (e.g., public and private), and between traditional four-year programs and shorter, occupationally oriented programs. The revenue implications of these effects are important to institutions and to states.

Analyses of the postsecondary educational choices of the NLS veterans can identify the ways in which they are currently distributed among institutional types and programs. Estimates of their choice behavior if veterans' benefits were ended

could be compared with their current behavior to project the distribution of effects within postsecondary education.

TWO-YEAR COLLEGES

Public junior and community colleges have become an important part of the postsecondary education system. In 1973, students in the 817 public two-year institutions accounted for 23 percent of total undergraduate degree credit enrollments (full-time equivalent). Two-year institutions are particularly important in states such as California and Florida that restrict freshman admission to the public four-year colleges and universities to the ablest high school graduates, and channel the large majority of students through two-year systems. They are also particularly important to the low- and middle-income populations. Of all full-time freshmen in fall 1973, over 50 percent of those whose family incomes were less than $6000 and over 40 percent of those whose family incomes were between $6000 and $15,000, attended two-year public colleges.[9] The two-year colleges also serve vast numbers of part-time students from low- and middle-income families.

As mentioned earlier, two-year-college students are much more likely to drop out than are four-year-college students. The National Commission on the Financing of Postsecondary Education (NCFPE) estimated that fewer than two-thirds of the students who entered two-year colleges in fall 1967 returned for their second year, and only 40 percent had received degrees or were still enrolled in higher education in 1970. Moreover, the Commission's tabulations include both associate and bachelor degrees in the categories of "received a degree" and "received degree or still enrolled." Since many two-year-college students terminate their education with an associate degree, the odds that they will go on to a bachelor's degree are substantially less than 2 in 5. In contrast, of the students who entered four-year colleges and universities in the fall of 1967, better than three-quarters returned for their second year and, four years later, about 46 percent had received degrees and nearly 60 percent had either received a degree or were still enrolled.[10]

The high proportion of two-year-college students who do not achieve the bachelor's degree is a source of serious concern. Since two-year colleges are the primary path to higher education for the economically less advantaged, it is questionable whether such people truly enjoy equal educational opportunity. Also at issue is the appropriateness of state policies that deliberately channel the bulk of college-going students through the junior and community college systems. How well do state and federal student financial aid programs meet the needs of two-year-college graduates who must decide whether to quit at that point or go on to a four-year college or university?

The information required to address these issues, and a host of similar policy questions, is lacking. The studies outlined below address topics centered on "issue exploration" and "problem identification"; they are aimed at expanding knowledge of student's transitions into, through, and out of two-year institutions.

[9] P. Christoffel and L. Rice, *Federal Policy Issues and Data Needs in Postsecondary Education*, National Center for Educational Statistics, 75-222, Government Printing Office, Washington, D.C., 1975, p. 10.

[10] *Financing Postsecondary Education in the United States*, Government Printing Office, Washington, D.C., December 1973, p. 157.

- **Persistence and Transition Patterns of College Parallel Students**

We accord this study high priority. Over two-thirds of the students entering two-year colleges intend to transfer to four-year colleges and universities,[11] but many of them drop out and many who finish do not go on. To be sure, some of them will resume their education later on, and others leave because they have fulfilled their educational objectives. Nonetheless, it appears that a substantial proportion of the students who enter two-year colleges with the ultimate objective of a bachelor's degree encounter obstacles that keep them from getting there.

Financial difficulties may lie at the center of this problem. In 1969, only 20 percent of the four-year colleges and universities had specific aid programs for transfer students, and although one-third of all new freshmen received aid, only 14 percent of the transfer students received it.[12] Federal programs were restructured in 1972 and may have eased this problem. Nonetheless, it is still a question whether existing financial aid programs are effective enough so that the two-year college is not a dead-end street for students who aspire to a bachelor's degree.

Why do students drop out of two-year colleges? Why do students who have completed a two-year program fail to go on? Among those who do go on, what factors influence their choices among four-year institutions? Are transfer students able to keep pace, academically, with those who initially enrolled in a four-year college? Many similar questions could be posed, but they are all encompassed in a single, overarching issue: Controlling for other factors, including those that influence the initial choice of institutional type, do students who initially enroll at two-year institutions have the same probability of achieving the bachelor's degree as students who initially enroll at four-year colleges and universities? If not, what new or modified programs are needed to equalize their chances?

To concentrate on these issues, the analysis should focus on students who entered full-time academic programs in fall 1972. The analysis should exclude students who did not go on to college, deferred entry, entered occupational or vocational programs, or continued their education part-time at a noncollegiate institution. Students who initially entered college parallel programs in two-year institutions would be divided into three groups, depending on whether they dropped out of college within two years, completed a two-year program and did not continue, or completed a two-year program and continued at a four-year college. If data from the third follow-up survey (fall 1976) are available, the third group can be divided into those who dropped out before completing B.A. requirements and those who either received a B.A. or were still in school in fall 1976. Students who initially entered four-year colleges or universities would be similarly divided into groups corresponding to their persistence. In sum, the students included in the study would be divided into six (or eight) mutually exclusive groups, according to the following scheme:

[11] The Carnegie Commission on Higher Education, *The Open Door Colleges*, McGraw-Hill, New York, 1970.

[12] W. Willingham and N. Findikyan, "Transfer Students: Who's Moving from Where to Where and What Determines Who's Admitted?" *College Board Reports*, Vol. 72, Summer 1969.

Years of College Completed	Institution Initially Entered: Two-Year College	Institution Initially Entered: Four-Year College or University
Less than two	A1	B1
Two	A2	B2
Two to four and no B.A.	A3	B3
Four or more or B.A.	A4	B4

Questions regarding the persistence and transfer patterns of students who enter two-year colleges can then be formulated in terms of the distribution of two-year college entrants among groups A1 through A4. Questions regarding the influence of entering a two-year college (compared with a four-year) on a student's persistence can be formulated in terms of differences between corresponding groups in the two-year and four-year columns, controlling for differences in the characteristics of the students in each group.

For example, to estimate the relative strength of factors influencing completion of a two-year program among junior college entrants, define a dependent variable whose value is 0 for each student in group A1 and 1 for each student in groups A2 through A4. Then, using logit or probit techniques, regress this variable on the independent variables of interest for all students who initially entered two-year colleges. A similar analysis, performed on students who initially entered four-year colleges, would provide estimates of the relative effects of the independent variables on their chances of completing two or more years of schooling. A test of the equality of the coefficients in the two equations would indicate whether type of institution influences persistence through the second year.

Independent variables would include measures of the respondent's background (e.g., ethnicity, parental SES, parental aspirations for respondent, ability, sex, and quality of high school as perceived by respondent). Others of interest for this particular study include:

- Life goals (72Q20, 73Q20, 74Q148)
- Educational aspirations (72Q29, 73Q12)
- Reasons for choosing college (72Q68, 73Q81-84d)
- Transfer plans in 1972 (72Q72)
- Marital status (73Q7a, 74Q105)
- Income (73Q11, 74Q114)
- Reasons for changing schools (73Q31, 74Q27)
- Grades (73Q41a, 74Q39)
- School expenses (73Q46, 74Q44)
- Sources of support (73Q47, 74Q46-57)
- Local labor market conditions (e.g., unemployment rate, prevailing wages, etc.) if a version of the file providing such information can be made available.

Tracking of the Class of 1972 beyond 1976 would provide little further information of value to this study. Surveys of other cohorts would permit comparisons of how persistence and transfer patterns of two-year college students are affected by an altered state of economic and social realities.

The Decision to Enroll at a Two-Year College

Two-year-college systems offer low costs, geographic accessibility, and liberal admission policies to students who otherwise would lack access to higher education. They provide occupational and vocational programs to students who wish post-secondary training. They also serve large numbers of students who would have entered more costly, more distant, and more restrictive four-year colleges if the two-year institution had not been available, or if there had been more places for freshmen in four-year colleges.

The extent to which two-year college entrants fall into those categories bears on issues of access to postsecondary education and equality of educational opportunity, and is thus of interest in itself. Moreover, any analysis of the subsequent activities of those who enter two-year colleges must control for the factors that influenced their decision to enter in the first place. For example, a student who enters the labor market after one year at a two-year college may fare better (or worse) than a student who does so after one year at a four-year college, not because of anything that happened to either one while in college, but because the differing factors that influenced their decisions to enroll where they did may also influence their subsequent fortunes in the labor market.

The first follow-up (fall 1973) of the NLS provides data on the characteristics, programs, and educational objectives of students who entered college after graduation. Analyses of these data can identify the extent of similarities and differences among students who entered two-year and four-year institutions.

Students Who Enter Occupational and Vocational Programs

Occupational programs in junior and community colleges are constantly increasing in scope and variety. They include two-year associate degree programs, one-year certificate programs, and short-term training programs. Their students include recent high school graduates preparing for their first jobs, veterans (some of whom have had labor market experience or occupational training in the military services), working men and women seeking to upgrade their skills (perhaps with support from their employers), and people learning a skill for their own pleasure.

Virtually nothing is known about this student population. Why did they enter these programs rather than academic or college parallel programs? Why did they enter the particular program they chose? Why did they complete or fail to complete the program? What obstacles to enrollment did they encounter and how did they overcome them? Were others unable to overcome those obstacles, whom new or modified federal and state programs would help? How do the answers to any of these questions vary from one type of student to another?

At present, the NLS data provide a basis for addressing a limited subset of these questions, those that pertain to students who enter occupational and vocational programs in two-year colleges during their first year out of high school. Subsequent follow-ups will allow analysis of a broader range of questions.

V. CIRCUMSTANCES OF PERSONAL AND FAMILY LIFE

Within the domain of personal and family life, the transition process from adolescence to adulthood has been in a state of flux in recent years. Two changes with important future implications have been: (1) the disintegration of sex-role stereotypes, and (2) changes in the practices whereby families are formed, structured, and dissolved. We single out these two topics because they are relevant to particular life-cycle stages through which the NLS cohort is passing or will soon pass, and their effects are crucial to the social goals of individual self-sufficiency and self-realization. The two define a research domain embodying clusters of issues mostly centered on the "early warning" and "issue exploration" stages delineated in Sec. II.

DISINTEGRATION OF SEX-ROLE STEREOTYPES

Traditional sex roles appear to have changed dramatically, and the very notion of sex-role stereotypes has been subjected to growing public and personal examination.[1] Education is no longer confined to the young unmarried stage of a woman's life: increasing proportions of women are continuing their education after marriage.[2] More and more young mothers also are choosing to go to work, and their attachment to the labor force is neither temporary nor capricious.[3] (Undoubtedly, however, many mothers have gone to work because of economic pressures during a period of rapid inflation.) These trends, and many others, indicate a new flexibility in family living.

More women are now to be found in the higher-paying professions (e.g., physicians, lawyers, and judges) and in previously male-stereotyped occupations (e.g., insurance adjusters, mail carriers, gas station attendants, bus and taxicab drivers, and nonfarm laborers).[4] Changes in legislation and policy are eliminating many of the traditional barriers to the advancement of working women's careers.

Rising career commitment and occupational aspirations among young women are symptomatic of deeper changes in social attitudes and expectations both among

[1] Jean Lipman-Blumen and Ann Tickamyer, "Sex Roles in Transition: A Ten-Year Perspective," National Institute of Education, Women's Research Staff, Washington, D.C., n.d.; Karen Oppenheim Mason and Larry L. Bumpass, "U.S. Women's Sex-Role Ideology, 1970," *American Journal of Sociology*, Vol. 80, No. 5, March 1975, pp. 1212-1219; Karen Oppenheim Mason et al., "Change in U.S. Women's Sex-Role Attitudes, 1964-1974," *American Sociological Review* (forthcoming); Peter A. Morrison and Judith P. Wheeler, *Working Women and 'Woman's Work': A Demographic Perspective on the Breakdown of Sex Roles*, The Rand Corporation, P-5669, June 1976.

[2] Nancy J. Davis and Larry L. Bumpass, "The Continuation of Education After Marriage Among Women in the United States: 1970," *Demography*, Vol. 13, No. 2, May 1976, pp. 161-174.

[3] In 1964, 24 percent of young women with preschool children at home were in the labor force; by 1974, the figure was 37 percent. Approximately two-thirds of mothers worked full-time in 1975. See Allyson S. Grossman, "Women in the Labor Force: The Early Years," *Monthly Labor Review*, November 1975, pp. 3-9; Howard Hayghe, "Families and the Rise of Working Wives—An Overview," *Monthly Labor Review*, May 1976, pp. 12-19.

[4] Stuart H. Garfinkle, "Occupations of Women and Black Workers, 1962-1974," *Monthly Labor Review*, November 1975, pp. 25-35.

and toward women. In general, these shifts are most dramatic at the younger ages (especially under 25) through which the NLS cohort will soon pass. The present younger generation has been steeped in ideas of sexual equality and, in turn, promotes them.[5]

The reduction of sex-role stereotypes represents a broad expansion of options for self-realization on the part of men and women alike. Research that can illuminate the development of career aspirations and orientations among young women, and the problems associated with their realization, should have great value in dealing with current and future policy issues—especially research on the NLS cohort, which represents a generation less encumbered than its predecessors by sex-role stereotypes. For that reason, we have selected that subject as one of our ten high-priority studies.

• DEVELOPMENT OF CAREER ASPIRATIONS AND ORIENTATIONS AMONG YOUNG WOMEN

The occupational success of women largely reflects a culmination of influences that start in childhood. Role differentiation in early life affects later educational and occupational choices, hours and location of work, and other factors that historically have relegated women to lower-level positions in lower-paying industries. The purpose of this high-priority study would be to illuminate the effects on women's aspirations of role differentiation and other influences, such as the adequacy of counseling in high school, the level of educational attainment, economic necessity, age at marriage, and family characteristics (e.g., number and spacing of children).

People's aspirations, plans, and expectations for their working lives are powerfully conditioned by myriad factors of family background, educational attainment, ability, past experiences, and family responsibilities. For example, recent research has explored the importance of a maternal role model and attitudes of husbands toward working wives in conditioning young women's aspirations.[6] Vocational tracking early in high school has also been cited as a likely factor leading women into nonmobile jobs. Of undoubted importance, too, is a three-way interaction among career aspirations, early labor market experience, and family formation and growth.

The NLS is unusually well suited for disentangling such complex influences on women and their subsequent lives as wage-earners and parents. The NLS measures women's career aspirations (72Q24-25, 72Q81, 72Q35, 72Q52, 73Q19, 74Q142) and life goals (72Q20, 73Q20, 74Q148) at several points in time.

Since a woman's aspirations and goals at one point may influence her later aspirations and goals, independent of the effects of other factors, lagged values of these variables should be used as control variables. Change or the lack of change may also be due, of course, to intervening experiences with prior aspirations and goals. The following are suggested as control variables: various measures of the respondent's family background (e.g., parents' aspirations for respondent, socioeco-

[5] For example, the results of annual national surveys of college freshmen show that: (1) between 1967 and 1975, the percentage who feel that married women should confine their activities to the home and family has declined from 67 to 37 percent for men and from 44 to 18 percent for women; (2) 92 percent of all freshmen in 1975 favored job equality for women. See Robert J. Panos et al., *National Norms for Entering College Freshmen—Fall 1967, ACE Research Reports*, Vol. 2, No. 7, 1967; Alexander W. Astin et al., *The American Freshman: National Norms for Fall 1975*, Laboratory for Research on Higher Education, Graduate School of Education, University of California, Los Angeles, n.d.

[6] Herbert S. Parnes, "Factors in Career Orientation and Occupational Status," unpublished preliminary draft, Center for Human Resources Research, Ohio State University, Columbus, Ohio, n.d.

nomic status, race, family income), ability, and educational attainment. Other candidate independent variables include:

- Satisfaction with work (73Q51, 74Q79)
- Peer influence (72Q16)
- High school work experience (72Q8)
- Type of maternal role model (73Q80)
- Family responsibilities (73Q48b, 73Q54b, 74Q91a)
- Work and family orientations[7]

Although this study could be conducted with the data available through the second follow-up (fall 1974), the usefulness of its results would be enhanced with data from the third follow-up. Subsequent follow-ups would improve the basis for assessing how a woman's subsequent experiences affect her aspirations.

REALIZATION OF CAREER AMBITIONS

Although the NLS is best suited to elucidating the development of career ambitions rather than their eventual satisfaction, it can shed light on certain recognized impediments. Most obvious are the biologically and socially conditioned obligations associated with parenthood. But other factors are less apparent and need to be identified through research.[8] They include, for example, a woman's educational preparation, the type of entry job she chooses and the avenues of upward mobility into which it leads her, continuity within the labor force as affected by age at marriage and spacing of children, and so forth.

A study of the near-term realization of career ambitions will give more precise indications of how women's options are constrained during the first few years after high school. It will furnish a base of research to support informed public choice as to which constraints should be removed, and how.

ENTRY INTO PARENTHOOD

Important issues arise out of entry into parenthood, both outside and within marriage, at an age when parenthood may deflect young people from other goals.

[7] An index of an individual's work and family orientations can be constructed from items measuring a respondent's valuation of adult roles (72Q20, 73Q20, 74Q148). Respondents were asked to rate the importance of the following values:

Work Orientation
"Being successful in my line of work"
"Having lots of money"
"Being able to find steady work"
Community Orientation
"Having strong friendships"
"Being a leader in my community"
"Being able to give my children better opportunities than I've had"
"Working to correct social and economic inequalities"
Family Orientation
"Finding the right person to marry and having a happy family life"
"Living close to parents and relatives"
"Getting away from this area of the country"

[8] A recent study documents a relatively strong effect that makes for lower educational attainment among women in relation to males of comparable ability and social origin. The unknown determinants of this effect may well involve sex-role socialization or institutional discrimination. Karl L. Alexander and Bruce K. Eckland, "Sex Differences in the Educational Attainment Process," *American Sociological Review*, Vol. 39, October 1974, pp. 668-682.

• CONSEQUENCES OF EARLY PARENTHOOD

We assign high priority to a study of early parenthood. Childbearing in late adolescence makes up a significant fraction of childbearing by women of all ages. For the birth cohort of FY 1954 (comprising the bulk of the High School Class of 1972), 10 percent of women had become mothers by the time they reached 18, and 24 percent had done so by age 20. Fully one-seventh of U.S. women, then, become mothers during this three-year time span; of these mothers, 13 percent have experienced at least 2 live births by age 18, and 23 percent have 2 live births by age 20.

Although out-of-wedlock births make up a substantial fraction of all adolescent births and many babies are premaritally conceived, the majority of births in later adolescence occur among married parents. The usual consequences of early parenthood, therefore, are not the difficulties that people typically associate with youngsters who have "gotten in trouble," but rather are the more subtle and intricate restrictive effects of early parenthood on the mother's and father's roles within and outside the family.

The age at which women have their first child is an especially important factor in their subsequent role behavior.[9] For a young man or woman, parenthood at age 18, 19, or 20 may bear a closer resemblance to parenthood at age 16 than parenthood at 22—it interrupts postsecondary education or career development, impedes development of a stable marriage, and generally deflects the parent from other goals. Frequently, young mothers have to drop out of school or quit their jobs, at least temporarily, until they can make other arrangements for child care. And if they become caught up in infant care themselves, they need strong motivation if they are to return to school or to seek anything but humdrum employment in the work force. Going on welfare is another possible recourse. Obviously, so the argument goes, there are advantages to their acquiring as much education and career advancement as possible before entering upon childbearing, which in turn implies that those advantages are likely to be greater, the older the women are before experiencing their first births. Parenthood has less impact on fathers in their nonfamilial pursuits because men usually do not take on the primary responsibility for child care.

Early parenthood can be expected to have a range of consequences for the adolescent parents, their kin, and the larger society. Certain near-term consequences, such as economic dependency, marital instability, and failure to obtain job training because of immediate family responsibilities, are matters for public concern and can be studied with the NLS data. Effective public action requires a base of scientific knowledge, both to guide the design of policies and to identify segments of the population who are to be the targets of these policies.

It is helpful to rely on several complementary perspectives to discern the likely consequences of early parenthood and their salient policy implications. Such perspectives show how the concerns of this single priority study in fact cut across those of many of the other agenda studies. Consequences can be grouped usefully under broad headings like educational and occupational attainment or labor market par-

[9] Harriet B. Presser, "Age Differences Between Spouses: Trends, Patterns, and Social Implications," *American Behavioral Scientist*, Vol. 19, No. 2, November-December 1975, pp. 190-205; idem, "Early Motherhood: Ignorance or Bliss?" *Family Planning Perspectives*, Vol. 6, No. 1, 1974, pp. 8-14; idem, "The Timing of the First Birth, Female Roles, and Black Fertility," *Milbank Memorial Fund Quarterly*, Vol. 49, No. 3, July 1971, pp. 329-361.

ticipation, and economic security and well-being; or they can be viewed from a social-psychological perspective, placing emphasis on aspirations realized or thwarted, and resulting personal satisfaction and adjustment.

In any case, the breadth of information available from the NLS affords opportunities to examine near-term consequences of parenthood: (1) manifested in experience (e.g., labor market participation, continuation of postsecondary education); (2) perceived by the respondent (e.g., a statement that difficulty in arranging for child care prevented the respondent from continuing with education); (3) implied by a shift over time in aspirations (the shift coinciding with becoming a parent); and (4) implied by the degree to which expected and actual outcomes in life (e.g., regarding college completion, occupational attainment, labor force participation) diverge or converge for new parents compared with others.

Certain characteristics of the NLS data will restrict the scope of this study and will limit the universe to which inferences can be applied. These limitations are well defined in the sense that we are aware of the specific restrictions on statistical generalization. First, the sample includes only adolescents who finished high school; it excludes all dropouts—many of them, undoubtedly, early adolescent parents. Second, owing to its focus on parenthood, this study is restricted to ever-married (at interview) adolescents who have borne surviving children. The first- and second-wave survey instruments do not identify, as such, adolescents bearing children out of wedlock;[10] those whose pregnancies did not result in live births; and those whose children were no longer alive or present at the time of interview. As discussed above, a substantial fraction of adolescent childbearing occurs out of wedlock, of course,[11] and the context of adolescent parenthood varies greatly according to whether the parents are married.

The data items to be used in this study refer to childbearing during the later years of adolescence—ages 18 and older, for the most part. For high school seniors in spring 1972, the data identify the number of living children as of October 1973 (73Q8), October 1974 (74Q118), and October 1976 (not yet available). These dates furnish a chronology of adolescent childbearing as follows: (1) the number of surviving children born as of sixteen months after the conclusion of high school (i.e., prior to respondent's approximate age 19); (2) the number of surviving children born between November 1973 and October 1974 (respondent's approximate age 19-20); (3) the number born between November 1974 and October 1976 (respondent's approximate age 20-22).

This chronology imposes certain information limits: (1) Although the data do not establish respondents' *exact* ages at first birth for those who began childbearing before they were about age 19, they imply (through information on number of children) *upper bounds* for age at first birth (e.g., $\leq$ age 19 for persons reporting one child at age 19; $\leq$ age 18 for those reporting two children at age 19; etc.). (2) The data

[10] Technically, the NLS data do not totally restrict the researcher to married parents. On the third wave, both never- and ever-married individuals were queried about the number of children they had.

[11] In 1971, 45 percent of live first births to females 15 to 19 occurred before marriage. Such births occur disproportionately to early adolescent mothers (i.e., those under 18). For example, in recent years about 44 percent of births to white 15-year-old mothers were out of wedlock, but only about 12 percent of births to white 19-year-old mothers. The corresponding figures are considerably higher for nonwhites (91 percent and 54 percent, respectively) but, as with whites, they declined sharply with each teenage year. See John F. Kantner, "Coming of Age in America," October 1975 (mimeograph); Jane Menken, "The Health and Demographic Consequences of Adolescent Pregnancy and Childbearing," n.d. (mimeograph).

do establish nearly exact ages (i.e., ± 6 months) at first birth for those who began childbearing at or after approximate age 19. Specifically, the data furnish exact age in years and months; also, for any respondent ever married as of October 1974 (third wave), they give the number of children as of October 1973 and as of October 1974. The difference between these two numbers shows the number of births (and their order) for the respondents' ages with a ± 6-month range of uncertainty. (3) The data establish nearly exact ages for all second- and higher-order births occurring at or after approximately age 19.

Although the consequences of early parenthood cut across several other study areas, we recommend here the following topics for inquiry:

1. *Consequences for the educational attainment process.* Three kinds of outcomes likely to be affected most intensely by early parenthood warrant study: high school completion (73Q2); postsecondary school attendance, i.e., continuing beyond high school or taking steps that indicate an intent to do so (73Q23, 74Q9, 74Q12); and postsecondary persistence, i.e., remaining in or returning to a program of postsecondary education (73Q37, 73Q38, 74Q36, 74Q37).
2. *Consequences for labor market participation.* Outcomes to be analyzed here are: employment status (73Q1, 74Q1) and changes therein; reasons for not working (73Q54a and b, 73Q1, 73Q48a and b, 74Q91a); reasons for quitting jobs (74Q96n, "got married" and "had a baby" distinguished with 74Q106).
3. *Consequences for family economic well-being.* Outcomes here can be gauged by: multiple jobholding and change therein (73Q53, 73Q57, 74Q88, 74Q89); debts (74Q116); whether spouse was working (74Q107); annual income for respondent and spouse and changes in amount and relative share by each spouse (73Q11, 74Q113); living with parents (74Q3); financial assistance from parents or other family or friends, and change therein (73Q47, 73Q9, 74Q52, 74Q53, 74Q112).

LOWER EXPECTED SIZE OF FAMILIES

Surveys in recent years reflect a continuing decline in the number of children that young wives 18 to 24 expect to have: 3.1 in 1960, 2.9 in 1967, 2.4 in 1971, and 2.2 in 1975.[12] This decline is of particular interest since other studies have shown a close connection on average between stated expectations and eventual outcomes. It seems clear that fertility norms have undergone a major shift downward, at least for that portion of the population in the general age range of the NLS cohort. The factors contributing to this contemporary change are still subject to much speculation.

The NLS asks questions concurrently about work experience, future work plans, recent childbearing, and childbearing expectations. With these data, it is possible to estimate the nature and extent of interaction between women's evolving work experience and career aspirations, on the one hand, and their actual and expected childbearing on the other.

[12] U.S. Bureau of the Census, *Current Population Reports*, Series P-20, No. 288, January 1976.

TREND TOWARD CHILDBEARING OUTSIDE MARRIAGE

During the 1960s, the post-World War II trend toward early marriage and childbearing within marriage came to a halt. Midway through the decade, when out-of-wedlock childbearing among women aged 20 and over either declined or remained unchanged, the teenage out-of-wedlock birthrate rose at an annual average of 6 percent and there are indications that this shift has persisted since 1970, despite the availability of legal abortion.[13] This persistence has been accompanied by an increasing tendency among young unmarried mothers to keep their babies.

The rise in teenage parenthood outside marriage, and its persistence even after legal abortion became widely available in the 1970s, have implications that reach far beyond the absolute numbers of young persons involved. These implications have to do with subsequent childbearing and parenting by future cohorts in their late teens and early twenties and, perhaps, in other age groups as well. The evident weakening of the earlier sanctions against parenthood outside marriage may foreshadow a more widespread incidence of this phenomenon and of single-parent families (a trend long in the making due to marital dissolutions).

The trend toward single parenting itself is so new that we have been unable to find studies that follow the course of its development over time. The purpose of this study, accordingly, is to shed light on selected near-term aspects of this emerging phenomenon:

- The causative influences accounting for the rise in parenthood outside marriage;
- The milieu of family life into which the children of single-parent families will be socialized;
- Strains and changes in the lives of single parents.

STABILITY OF THE FAMILY

The contemporary American family is undergoing rapid and significant transformation with far-reaching implications for public policy. The most basic issues relate to the durability of the family as a social institution and its effective functioning as an agent for replenishing the population and fitting its new members into society. Specific changes under way include:

- An increase in the proportion of young people who refrain from marriage;
- Recent changes in living arrangements among young persons;
- Sharply increased divorce rates;
- Increased frequency of single-parent families.

[13] The most advanced data for California (whose fertility experience tends to reflect patterns throughout the country) suggest what is happening. The pattern observed there for the cohort of women who reached age 14 in 1968 (corresponding to the NLS cohort interviewed four years later) is highly instructive. This cohort experienced most of their teenage childbearing *after* legal abortion became fairly widely available in California. For this cohort, over one-third of those who began their childbearing careers before age 20 did so out of wedlock. This figure indicates a continuation of the virtually uninterrupted rise in the percentage of such births. June Sklar and Beth Berkov, "Teenage Family Formation in Postwar America," *Family Planning Perspectives*, Vol. 6, No. 2, Spring 1974, pp. 80-90.

The issues engendered by these trends are, for the most part, closely tied to decisions and actions taken at or around those stages of life which the NLS covers. Accordingly, our agenda emphasizes the possibility of illuminating behavior related to these topics.

The proportion of young persons refraining from marriage has increased decidedly in recent years. The increase is especially apparent among persons 20 to 24 years old, ages at which most men and women have traditionally married, and into which the NLS cohort is now maturing. In 1975, 60 percent of men and 40 percent of women in this age group were unmarried, compared with 53 and 28 percent in 1960.

Coincidental with the tendency to refrain from marriage has been a trend toward establishing households in "nonfamily" living situations as "primary individuals."[14] (Primary individuals, in the Census Bureau's terminology, are household heads who live in their own homes entirely alone or with persons not related to them.) Between 1970 and 1975 the number of households headed by primary individuals under 35 years old rose from two million to four million (an increase that represents better than one-fourth of the *total* national increase in households of all ages and all types).

The change in marriage patterns, along with the trend toward new kinds of living arrangements, has implications that reach far beyond the absolute numbers of young persons involved. These implications have to do with subsequent childbearing and parenting by future cohorts in their late teens and early twenties and, perhaps, in other age groups as well—clearly, questions that fall under the "early warning" heading.

• NEAR-TERM MARITAL STABILITY

With regard to marital stability, the risk of divorce is highest in the under-25 age group, and the divorce rate for this group has risen further in recent years. Between 1960 and 1969 the incidence of divorce for women under 20 rose from 23 per thousand to 43 per thousand.[15]

A good deal is already known about the correlates of marital dissolution (whose rate is highest among adolescents). They include premarital pregnancy, early age at marriage, closely spaced children, and incomplete high school or college education.[16] Behind these known relationships are important questions about the process by which young women and men are oriented toward marriage and childbearing at different ages, and the effect of these age variations on subsequent stability of marriage. A number of questions need to be investigated about how stability is affected by limited educational prospects, female work experience or lack thereof, timing of first marriage, and attitudes toward upward social mobility.

We recommend a study on the evolution of marital experience during the first few years after marriage, when most childbearing occurs and many marriages

[14] Paul C. Glick, "Living Arrangements of Children and Young Adults," paper presented at the annual meeting of the Population Association of America, April 1975.

[15] P. Krishnan and A. K. Kayani, "Estimates of Age Specific Divorce Rates for Females in the United States, 1960-1969," *Journal of Marriage and the Family*, Vol. 36, No. 1, February 1974, pp. 72-75.

[16] Lolagene C. Coombs and Zena Zumeta, "Correlates of Marital Dissolution in a Prospective Fertility Study: A Research Note," *Social Problems*, Vol. 18, No. 1, Summer 1970, pp. 92-102.

dissolve. Given the large sample size, it will be possible to examine a number of intervening factors (e.g., economic insecurity) suspected to affect marital stability but scarcely examined before in great detail for this particular age group. Suggested analyses to be conducted should address the following questions: For respondents currently married in October 1973, what is the probability (stratifying by categories of duration of marriage in months) that the marriage will remain intact through (1) October 1974 (73Q7a, 73Q7b and 74Q106 in agreement; 74Q105)? And (2) through fall 1976? This question should be addressed separately for groups with and without various influences hypothesized to affect marital persistence, e.g.,: (1) respondent's demographic and SES background, (2) educational attainment and plans of respondent and spouse, (3) financial and occupational status of respondent and spouse, and (4) career aspirations of respondent and spouse.

VI. LIFE OUTCOMES

Ordinarily, federal policies are oriented toward near-term instrumental objectives whose outcomes can be directly observed. Student financial assistance programs, for example, are intended to increase the rate at which low-income students attend particular types of colleges; manpower training programs are intended to improve immediate earnings of their participants. The rationale for these proximate objectives is that they promote fundamental public goals of self-realization and self-sufficiency. There is growing doubt, however, about the validity of assumed congruence between the objectives of public policy and the objectives young people today value in their personal lives and in their work.

A recurrent theme emerging from our interviews concerned these long-term objectives and goals—the kinds of satisfaction young people seek from work, and the value they place on altruism, materialism, social status, economic security, and the like. Those questions, although important in themselves, point toward a more fundamental concern: that well-intentioned programs with ends whose desirability seems self-evident to most adults may not accord with what contemporary youth want out of life. But the NLS, as we noted earlier, is severely limited in its capacity to describe *outcomes*, especially where these are revealed only gradually as individuals' lives unfold.

Subsequent waves of the NLS would offer an important opportunity to explore those concerns and assumptions. More important, they would provide an opportunity to understand how, and in what form, life satisfaction has evolved from young people's attitudes, experiences, and behavior, particularly in regard to activity choices influenced by federal policies.

Certain aspects of contemporary life, however, have become sources of immediate concern—for example, mental problems and character disorders, alienation, and family instability. These, along with perhaps a few others, can be regarded as central aspects of what constitutes life outcomes. Although the NLS data are poorly suited to studying the first two, family instability can and should be studied (see Sec. V). The nature of the family as an institution, and the rewards or penalties it bestows on people who enter into familial or family-like arrangements, will have a lasting influence on the way in which NLS respondents view their lives.

The growing incidence of single-parent families, two or more unrelated people living together, and people of all ages living alone indicates the degree to which affluence and the relaxation of social norms have widened people's life-style options. An important forward-looking aspect of the NLS research agenda concerns these new options. Too little is known about them to label them either as serious problems or as new opportunities for self-realization.

Turning to the longer-term aspects of life outcomes, an unusual opportunity will be missed if, with many important antecedent variables already measured, future NLS waves fail to address the topic of respondents' overall life satisfaction. The usefulness of the NLS surveys would be enlarged immensely if, in a future wave, robust measures of psychological well-being salient to policy concerns were collected. We include here any outcome measures that can indicate the overall effectiveness of contemporary socialization. Accordingly, we recommend one or several

small-scale planning studies to design specific attitude measures with which selected aspects of psychological well-being and satisfaction can be gauged. Such selection, of course, is inextricably tied to questions of value, not technical analysis; hence, it is beyond the scope of the present study. Among the attitude dimensions most salient to policy issues are:

1. *Life satisfaction and happiness.* A measure of this outcome would enable research on topics of public concern associated with social disorganization and alienation from the social system. Confirming and refining policymakers' working hypotheses about what contributes to satisfaction would strengthen the overall soundness of the social strategies they design.
2. *Citizenship and social responsibility.* Outcome measures here would allow research on factors affecting the development of attitudes about social responsibility, radicalism and conservatism, political participation, and opinion leadership.
3. *Mental health.* Attitude areas relating to mental disorders and character problems would make it possible to conduct research on certain known antecedents of antisocial behavior.

Additions to this list may be warranted; however, we regard these three as centrally important.

Once attitude dimensions have been selected (perhaps through an NCES in-house study), it will be necessary to evaluate various available operational measures cited in the literature and select certain ones for use.[1] The items finally adopted should be pretested if possible and then included in an early-1980s follow-up, when the NLS cohort will be in their mid or late twenties.

[1] Major research sourcebooks here are: John P. Robinson and Phillip R. Shaver, *Measures of Social Psychological Attitudes*, rev. ed., Institute for Social Research, University of Michigan, Ann Arbor, 1973; K. Chun et al., *Measures for Psychological Assessment: A Guide to 3,000 Original Sources and Their Applications*, Institute for Social Research, University of Michigan, Ann Arbor, 1975; Norman Bradburn, *The Structure of Psychological Well-Being*, Aldine Press, Chicago, Illinois, 1969.

VII. FUTURE DIRECTIONS FOR THE NATIONAL LONGITUDINAL STUDY

Major decisions regarding the future directions of the NLS must soon be made. Specifically, two basic questions must be answered: (1) Should follow-ups be undertaken beyond the fall 1976 follow-up of the original NLS panel? (2) Should the study be replicated by initiating a new cohort, say the Class of 1979 or 1980, and following it as the Class of 1972 has been followed?

Both options involve considerable expense, and although they are not mutually exclusive they are mutually competitive, in the sense that they vie for NCES's limited funds and manpower. In this section, we identify the research opportunities that each would open up, to strengthen the basis on which an informed decision can be made.

ARGUMENTS FOR A NEW COHORT

There are four arguments for initiating a new cohort: (1) to obtain data pertaining to issues that go beyond the scope of the data collected on the original 1972 panel; (2) to provide a basis for assessing the extent to which findings about the 1972 panel can be generalized to other cohorts; (3) to address policy concerns that have emerged since the 1972 panel was initiated; and (4) to explore processes of social change.

Issues Beyond the Scope of Existing Data

Although the instrumentation for the 1972 NLS has been comprehensive, the benefit of hindsight points to important data that were not collected at the time of the baseline survey or the initial follow-ups. Without these data, some research topics cannot be addressed. By initiating a new cohort with revised instruments, such information could be obtained.

For example, no information was gathered on individual students' labor market perceptions. Consequently, analyses of their postsecondary decisions—to enter the labor market, or to engage in some other activity such as going on to college or entering military service (and, if they choose the former, to enter a particular job)—cannot account for their expectations of the consequences for themselves of undertaking any particular option. Suppose a member of the Class of 1972 began working in a job offering little in the way of career prospects, say as a dishwasher in a restaurant. We might question the person's motivation and aspirations. But if the youth took the job because he or she wanted to learn restaurant management from the ground up, we would have to alter our perception of motivation and aspirations.

Similarly, the initial instrumentation provided virtually no information on high school students' part-time and summer work experiences. Yet, the work of Coleman and his associates has placed a renewed emphasis on understanding people's working experience during high school.

To cite a third example, the initial instrumentation did not obtain information on welfare status and dependence on public assistance. Consequently, research cannot be done regarding the influence of dependency status on young people's subsequent lives.

Undoubtedly, there were other important omissions. It is beyond the scope of this study to identify and analyze them, but these few examples illustrate the first major advantage of replicating the NLS on a new cohort.

Validating Relationships Based on a Single Cohort

Research on people in the Class of 1972 can illuminate broad areas of behavior, but as in any instance where scientific findings rest on a single cohort, there is a fundamental question of whether those findings can safely be generalized to other cohorts, especially future ones. Future policy must rest on the assumption that relationships between the variables to be manipulated by policy and individuals' behavior will remain invariant.

This assumption is especially questionable for the Class of 1972, which entered a world of work that was shortly hit by a depression. Its effects on postsecondary decisions, and the results of those decisions, are strictly a matter of conjecture. Consequently, few analysts would feel safe in regarding the behavior of the Class of 1972 as representative of future cohorts.

New Policy Concerns

A major reason for studying the experiences of the Class of 1972 has been to shed light on concerns relevant to policymakers in the early 1970s. Yet the policy environment itself changes, and along with it the information needs of policymakers. As new concerns emerge, the applicability of information gained on the Class of 1972 diminishes.

Student financial aid, for example, has become a major issue in postsecondary education. The Education Amendments of 1972 dramatically restructured almost all student aid programs and introduced several new ones. These programs were undergoing severe teething problems when the Class of 1972 graduated. The Basic Educational Opportunity Grant (BEOG) Program, for example, was barely under way and was subject to all the problems encountered in getting a major new program off the ground. It is therefore highly uncertain that information on the Class of 1972 is all policymakers need to foresee how the new programs will affect students.

Similarly, the career education movement, a major new direction in elementary and secondary education, began only in the early 1970s and probably had little effect on the Class of 1972. It will probably exert a greater effect on future classes. If we are to analyze those effects, we will need data on a more recent cohort.

Social Change

The succession of cohorts with different experiences is the demographic avenue through which change enters society. Children born during the depression of the 1930s outgrew their parents' preference for small families and formed the larger families stylish in the 1950s. Their children, in turn, are reverting to small families. In another vein, the political activism of the generation that matured in the late

1960s seems to have given way to quiescence among succeeding cohorts, while delinquency has steadily increased.

Social change, and its attendant strains within and between generations, is a complex topic of study because changes within a cohort cannot easily be distinguished from changes between cohorts. Without this distinction, we cannot know whether contemporary new trends—for example, the tendency for young persons to remain single, the trend toward "stopping out" in the course of their education, smaller families, and new variants of the cluster of persons who live together as a household—are merely temporary shifts due to the impress of one cohort's distinctive historical encounters; or whether these trends represent a consistent progression of change occurring independently of prosperity, depression, and social faddism.

The NLS data collected so far can be used to illuminate social change *within* a single cohort. However, only by relating the NLS cohort's unfolding career to that of one or more other cohorts would it be possible to examine the nature and extent of social change between cohorts.[1]

Several longitudinal studies have been made of cohorts preceding the Class of 1972: Explorations in Equal Opportunity (EEO), Project Talent, and the Parnes Young Men and Women Panels.[2] Together with the NLS, these data sets comprise a succession of cohorts, each interviewed longitudinally, for three points in chronological time, as follows:

1955	EEO survey of 2077 students interviewed as high school sophomores (follow-up interviews in 1970)
1960	Project Talent survey of 5-percent national sample of 9th through 12th graders, followed up one, five, and eleven years after graduation
1966, 1968	Parnes survey of 5159 young women (1968) and 5225 young men (1966) 14 to 24 years of age (followed up almost annually thereafter for five years)
1972	NLS high school seniors, reinterviewed in 1973, 1974, 1976, and possibly later

The first three furnish extensive information on respondents' attitudes, education, work, marriage, and family status. However, they use samples drawn from different universes, obtain different information, and use different follow-up procedures. Consequently, although they provide a basis for studies of intercohort changes, they cannot be viewed as replications over cohorts. Severe limitations would beset any efforts to treat them as, in effect, limited studies of "NLS-like" cohorts for earlier periods. In short, they cannot substitute for a new NLS cohort and the opportunity it would provide to analyze social change.

[1] For elaboration of this point, see Otis Dudley Duncan, "Measuring Social Change Via Replication of Surveys," in Kenneth C. Land and Seymour Spilerman (eds.), *Social Indicator Models*, Russell Sage Foundation, New York, 1975, Chap 5.

[2] The EEO project is described in Karl Alexander and Bruce K. Eckland, *Effects of Education on the Social Mobility of High School Sophomores Fifteen Years Later (1955-1970)*, Final Report, Project No. 10202, Grant No. OEC-4-71-0037, National Institute of Education, November 1973. The Parnes and Project Talent studies are described in various publications issued, respectively, by Ohio State University's Center for Human Resources Research and the American Institutes for Research.

Another important longitudinal sample is the 1957 survey of Wisconsin high school seniors, followed up in 1964. See William H. Sewell and Robert M. Hauser, *Education, Occupation, and Earnings*, Academic Press, New York, 1975.

ARGUMENTS FOR CONTINUATION OF THE 1972 COHORT

The research possibilities that further follow-up of the Class of 1972 would enable fall into three basic areas: (1) individuals' relationships with the labor market, (2) their long-term life outcomes, and (3) the intergenerational transmission of effects. In addition, continuation would maintain the NLS as a basic investment in the future.

Labor Market Research

Many important issues center on affiliations, behavior, and experiences in the labor market; but the Class of 1972 has only begun to enter the labor market. Even those who did not go on to college will have had only four years experience in the labor market by the 1976 follow-up, and those who went on to college will have been in the labor market for only a few months by that time. Further information on their relationships with the labor market will be needed if analyses are to be conducted of what happens to these people, what kinds of problems they encounter, and how policies affect their activities.

A closely related question is how labor markets function. The neoclassical theories of the workings of labor markets have been severely challenged by other hypotheses. These challenges, in turn, raise basic questions about the role of education in our society. At present, the necessary data for assessing the new hypotheses are lacking. Labor markets are not concrete institutions amenable to analysis. To understand how they work, research must examine people's experiences in them and hence deduce the nature of the markets.

Long-Term Outcomes of Social Policies

Federal social policies generally aim for short-term objectives whose attainment is thought to help people achieve longer-term objectives. For example, many federal programs promote college attendance, on the assumption that it makes life more fulfilling and productive. We have faith in that assumption, but little evidence to support it. By continuing the investigation of the Class of 1972, it would be possible to assess the soundness of the rationales for policies and programs. Identification of but one faulty rationale can save many millions of public dollars, as the experience of the 1960s reminds us.

Intergenerational Influences

Many members of the Class of 1972 have already become parents, and many others will do so in the near future. If we follow them up for some years, we may become able to examine the intergenerational transmission of influence. That is to say, we can begin to study how their parents' experiences and behavior will affect the lives of children born to the Class of 1972.

NLS as an Investment Opportunity

Finally, we must recognize that, from an investment standpoint, the primary value of the NLS is not its dollar cost but the information it yields over time. It is

possible that a 10-year tracking of the Class of 1972 will prove immensely valuable for future research. There are no guarantees that it will, but it seems likely that the availability of an intact panel could be very useful. (We distinguish here between an intact panel and the expensive procedures whereby data might be collected from its individual members.)

For example, consider the question of mid-life career redirection. At present there are no major federal programs in this domain, but the topic is attracting attention. Many European countries have introduced national programs to ease redirection of careers in the middle years. Within the next decade or so, the United States may do the same. If that issue becomes a greater federal concern than it currently is, research will be needed on the kinds of careers people follow, what kinds of people encounter what kinds of success, how successful they are at career redirection, how education facilitates career redirection in mid-life, and so forth.

Consider, too, the problem of the single-parent family. If current trends continue, it is claimed that a majority of children will at some point in their lives be raised in a single-parent family. What this portends for their futures is at present unknown, as is the likelihood of major policy problems connected with single parenthood. But forewarned is forearmed: longitudinal data on nurture in a single-parent family may well become, in the 1980s, priority information for several federal agencies.

DILEMMA OF ORGANIZATIONAL MISSION VERSUS SOCIAL NEEDS

In considering the issue of further follow-ups of the Class of 1972 versus initiating a new cohort, a dilemma emerges of organizational mission versus social needs.

From the standpoint of social needs, there is a strong case for continuing the current NLS cohort. The possibility of uncovering faulty premises underlying major programs that entail large annual expenditures, so that these programs can be revised or phased out, makes such continuation seem highly cost-effective. Continuation would also enable the collection of data needed to assess labor market dynamics and the relationship of education and labor markets. Finally, continuation would be a basic investment in knowledge that may yield large payoffs as the longitudinal data base expands.

From the standpoint of the educational community and its pressing concerns, initiation of a new cohort is more justifiable. The Class of 1972 has largely passed through the educational system; most of its members will have few, if any, further contacts with the system. A new cohort, on the other hand, would allow analyses of the participation of individuals in the educational process. It would also resolve the question of whether the changing circumstances and environments confronting future students as they leave high school will invalidate the results obtained from analyses of the Class of 1972.

In short, if the National Center for Educational Statistics must choose between these two alternatives, the case for initiating a new cohort seems stronger than that for continuing to follow the Class of 1972.

Appendix A

TECHNICAL DESCRIPTION OF NLS SAMPLE[1]

BASE-YEAR SAMPLE

The NLS sample design called for a nationally representative sample of 21,600 high school seniors in 1200 randomly selected public and nonpublic (Catholic and non-Catholic) schools. The universe of secondary schools within the 50 states and the District of Columbia was stratified according to seven variables:

- Control (public or nonpublic)
- Region (Northeast, North Central, South, West)
- Enrollment (less than 300, 300-599, 600 or more)
- Proximity to institutions of higher education
- Percent minority students
- Income level of the community served by the school
- Urbanization

A total of 600 strata were generated. Four schools were randomly selected from each stratum; two of these (randomly selected) were designated as the primary schools while the other two were retained as backup, or substitute, selections. A sample of 18 students was randomly selected from each included school.

Excluded were schools for physically or mentally handicapped students, schools for legally confined students, and schools whose students were enrolled in other schools included in the sampling frame. Certain categories of students (e.g., early graduates and adult education students) also were excluded.

BASE-YEAR INSTRUMENTS

Five instruments were employed in the baseline study.

The *Student Questionnaire* contained 95 items regarding each participating student's characteristics and background, educational and vocational experience, attitudes and opinions, immediate and long-range plans and aspirations, conditions perceived as having influenced respondent's decisions, knowledge about sources of financial aid for postsecondary education and training, and self-concept values.

The *Test Battery*, consisting of six separate sections, measured five cognitive factors: verbal, quantitative, associate memory, inductive reasoning, and spatial/perceptual.

The *Student Record Information Form*, completed by the school administrator, summarized each participating student's curriculum, grade point average, semester hours credit in major courses, position in ability groupings (if used), remedial in-

[1] This technical discussion is drawn from Jay Levinsohn, John A. Riccobono, and P. Raul Moore, "National Longitudinal Study of the High School Class of 1972: Base-Year and First Follow-up User's Manual," prepublication draft, Center for Educational Research and Evaluation, Research Triangle Institute, Research Triangle Park, North Carolina, April 1975.

struction record, involvement in certain federally supported programs, and scores on standardized tests.

The *School Questionnaire* obtained information about each participating school's programs and students, including: grade structure, enrollment by curriculum, programs for the handicapped and disadvantaged, average teacher's educational level, absence and dropout rates, racial-ethnic makeup, college recruitment efforts, resources, participation in federal programs, teacher turnover, library and other facilities, age of buildings, proximity to postsecondary institutions, and grading system.

The *Counselor Questionnaire*, administered to two counselors randomly selected from each participating school's staff, obtained information on the counselor's training, experience, activities, assignments, methods, workloads, and resources they used.

Of the 1200 primary sample schools, 949 participated in the base-year survey, 21 had no seniors enrolled (presumably they had opened only recently), and 230 either refused to participate or could not participate because they received the request too late in the school year. A total of 121 backup schools also participated, including 26 schools that were "extras" in their stratum. (A backup school was termed "extra" if both schools in the primary sample for its stratum participated.)

Responses for the base-year survey, initiated in April 1972, are shown below:

	Number of Respondents		
	Primary Sample	Backup Sample	Total
School Questionnaire	949	95	1,044
Counselor Questionnaire	1,620	180	1,044
Student Instruments			
School Record Information	16,093	1,600	17,693
Test Battery	14,933	663	15,596
Questionnaire	15,532	846	16,378

Thus, of the 17,082 students in the participating primary sample schools, 91 percent completed questionnaires.

FIRST FOLLOW-UP SAMPLE (SECOND WAVE)

Because of the large school nonresponse in the base-year survey, further attempts to secure participation of the 230 nonparticipant primary sample schools were undertaken during the first follow-up. This "resurvey" activity involved securing school cooperation and selecting samples of 18 former students (1971-1972 seniors) per school. Of the 230 base-year nonparticipant schools, 204 participated in the first follow-up.

Students from the 26 "extra" schools were not included in the first follow-up survey, but additional backup schools were included in the survey as needed to obtain two or more participating schools from each of the 600 strata.

Samples of 1972 senior students were also selected from 16 augmentation sample schools. These schools were selected from those identified in 200 sample school districts canvassed to identify public schools not included in the school sampling frame. Samples of 18 students selected from each of the 16 augmentation schools were included in the first follow-up survey.

In summary, the first follow-up survey sample included 18 students from each of 1300 schools: 1153 of them primary sample schools (of which 949 participated in the base-year survey), 131 backup schools (excluding the 26 "extra" backup schools that had participated in the base-year survey), and 16 augmentation sample schools.

FIRST FOLLOW-UP INSTRUMENT

Two forms (A and B) of the *First Follow-up Questionnaire* were developed. Form A was mailed to each student who responded to the base-year student questionnaire. Form B was mailed to each student "added" to the base-year sample through the participation of the 204 primary sample schools that had not participated in the base-year survey, and the 16 augmentation sample schools. Questions 1 through 85 were identical on both forms and many were drawn directly from the base-year student questionnaire. These dealt with the individual's activity (e.g., work, school, military) in October 1972 and October 1973, marital and family status, socioeconomic status, work and educational experiences since leaving high school, future educational and career plans, attitudes, expectations, and aspirations. Form B contained an additional 14 questions to supplement missing base-year information.

The questionnaires were mailed to the last known addresses of potential respondents on 23-24 October 1973. This was followed by a sequence of reminder postcards, additional questionnaire mailings, and reminder mailgrams to nonrespondents. Active mail return efforts continued through December 1973.

The Bureau of the Census then attempted to interview each of the approximately 8000 remaining nonrespondents personally. These efforts continued through March 1974.

An overall response rate of 93 percent was achieved.

SECOND FOLLOW-UP (THIRD WAVE)

The second follow-up was addressed to all students in the original sample. Follow-up procedures and instrumentation were essentially the same as those used in the first follow-up. The National Center for Educational Statistics has not yet prepared documentation of the second follow-up, but, we are informed that a 94 percent response rate was achieved on this wave.

AVAILABILITY OF NLS DATA BASE

In May 1976, the National Center for Education Statistics announced the release of computer tapes containing data from the NLS. The tape file contains data from three surveys: the base-year (spring 1972), the first follow-up (October 1973), and the second follow-up (October 1974). Base-year data include students' personal-family

background, education and work experiences, immediate postsecondary plans, aspirations for the future, and attitudes. Also included are test results for both verbal and nonverbal ability, as well as items from the students' high school records. All subsequent periodic follow-ups provide data about the respondents' activity status (e.g., education and work); plans for education, work, and career; and aspirations, attitudes, and expectations.

The data file comprises 22,532 records—one for each sample member who responded to either the base-year, first follow-up, or second follow-up questionnaires. Each record contains 1495 variables; they consist of such information as identification codes, data indicators, test battery data, selected high school record information, questionnaire data from each of the three surveys, quality indexes, sampling weights, and analytic indexes. The file contains no information that would permit identification of students or schools.

A User's Manual accompanies each set of tapes. Each manual contains a variable list and response sets giving the variable's name and description, its location and field size, and a response list reference code. The manual also contains sample questionnaires and technical explanations of codes and indexes.

The User's Manual gives the extent and details of the editing of the NLS files. The file processing involved verification, cleaning, and supplementary coding of the original data. Violations in following the written instructions and routing patterns in the questionnaire resulted in supplementary codes being inserted in the data to indicate the location and nature of the violations.

The data tapes consist of three 2400-foot reels of 1600 BPI density. The tapes and the User's Manual may be purchased for $282, payable by check made out to the U.S. Office of Education. The NCES will not accept purchase orders. Interested readers should send their orders to Robert A. Heintze, National Center for Education Statistics, Room 3069, FOB-6, 400 Maryland Avenue, SW, Washington, D.C. 20202.

Appendix B

LIST OF PERSONS INTERVIEWED IN CONNECTION WITH THE STUDY

The following persons have been interviewed in connection with the study. (Rand personnel are not listed.)

Name	*Affiliation*
J. Bergsman	CBO
S. Carrillo	OPBE/HEW
M. Chandler	NCES/HEW
P. Christoffel	College Entrance Examination Board
E. Collins	NCES/HEW
W. Dorfman	NCES/HEW
G. Duskin	EDA
C. East	Women's Bureau/DOL
B. Eckland	University of North Carolina
W. Fetters	NCES/HEW
E. Flemming	OPBE/HEW
I. Garfield	NCES/HEW
J. Haines	OPBE/HEW
D. Johnston	OMB
M. Kramer	ASPE/HEW
D. Mundel	CBO
S. Newman	NICHHD/NIH
D. Orr	NCES/HEW
K. Peratis	ACLU
E. Porter	Civil Service Commission
J. Rodriguez	ASPE/HEW
T. Saario	Ford Foundation
F. Setzer	ASPE/HEW
J. Snead	HUD
R. Stern	ASE/HEW
E. Stromsdofer	ASPER/DOL
R. Stump	NIE/HEW
K. Tabler	NCES/HEW
A. Wagner	College Entrance Examination Board
G. Wheaton	ASPE/HEW
J. Williamson	NIE/HEW

Appendix C

USERS OF NATIONAL LONGITUDINAL STUDY OF THE HIGH SCHOOL CLASS OF 1972

(As of September 23, 1975)

1. Dr. Anthony Boardman
   Fels Center of Government
   University of Pennsylvania
   39th and Walnut
   Philadelphia, Pennsylvania 19174

Dr. Boardman is using the data for a simultaneous equation model of the educational system similar to one he did using the Coleman data. He is focusing on measures of achievement, self-esteem, control over the environment, and self-perception.

2. Dr. William J. Bowers
   Russell B. Sterns Center
   Northeastern University
   Boston, Massachusetts 02115

Dr. Bowers's study focuses on the rates at which NLS students went on to college, immediately or with some delay, and their persistence following initial entry. His primary concerns are the effects of students' economic resources, academic readiness, and awareness of opportunities; of institutions' admissions policies; and of federal student assistance programs on entry and persistence, particularly of disadvantaged students.

3. Dr. Hunter Breland
   Educational Testing Service
   Princeton, New Jersey 18540

Dr. Breland used the NLS for a cultural group study. ETS is developing several additional projects that will use the NLS data. (See comments about the work of Dr. F. Reid Creech, below.)

4. Dr. Robert L. Crain
   The Rand Corporation
   1700 Main Street
   Santa Monica, California 90406

Dr. Crain's analysis focuses on the effects of high school characteristics on the postsecondary plans and college attendance rates of talented students, particularly talented female and minority youth. Data on the extent of natural and intentional desegregation, at the district level, will be merged with the NLS to allow estimation of the effect of desegregation efforts on students' postsecondary outcomes.

5. Dr. F. Reid Creech
   Educational Testing Service
   Princeton, New Jersey 18540

ETS has completed an analysis of the NLS base-year data and is conducting an analysis of the data obtained in the first follow-up. Both studies, directed by Dr. Creech, focus on vocational education. The base-year study examined selected characteristics of the Class of 1972, the characteristics distinguishing vocational students from general and academic students, and the effects of academic, social, and personal characteristics on students' plans and aspirations. The follow-up study has four broad concerns: the accessibility and availability of vocational education; student attitudes, capabilities, and decisionmaking; the content and flexibility of training and its relation to labor markets; and evaluation methodology and measurement techniques.

6. Mr. Chip Darling
   Rhode Island Department of Education
   Providence, Rhode Island

The Rhode Island Department of Education is starting a longitudinal study of its own and will use the NLS as a national mode for questions and comparisons. The College Entrance Examination Board is involved in the project, which focuses on college financing.

7. Dr. Jay A. Davis
   Research Triangle Institute
   P.O. Box 12194
   Research Triangle Park, North Carolina 27709

The Research Triangle Institute is conducting the NLS under contract from the National Center for Educational Statistics. They have undertaken a variety of analyses aimed primarily at methodological issues. Topics examined include: bias resulting from school nonresponse; calculation of nonresponse-adjusted student weights for responders to the baseline and first follow-up surveys; effects of stratification, clustering, and unequal weighting on the variances of certain statistics; and the like. In cooperation with NCES, they have published several volumes that present various NLS data in the form of tables or cross-tabulations.

8. Dr. Bruce Eckland
   University of North Carolina
   Chapel Hill, North Carolina 27514

Two of Dr. Eckland's graduate students, working independently, are using the NLS to examine race-by-sex differences in the educational attainment process. One, Gail Thomas, is studying the effects of SES and ability on the transition from high school to college. The other, Jim Gruber, is examining factors that influence high school students' self-esteem and locus of control, and the question of whether those two attributes have any independent effect on students' postsecondary outcomes.

9. Dr. Donald B. Holsinger
   University of Chicago
   Judd Hall 320
   5835 South Kimbark Avenue
   Chicago, Illinois 60637

Dr. Holsinger is primarily interested in the relationship between self-efficacy and eventual occupational status. He is also looking at personal characteristics, dispositions, attitudes, and aspirations.

10. Dr. Thomas E. Jordan
University of Missouri, St. Louis
8001 Natural Bridge Road
St. Louis, Missouri 63121

The NLS file is being used to prepare baseline information on high school seniors and design questions for future surveys of Dr. Jordan's longitudinal study of 1000 children (and their mothers) born in St. Louis in 1966. It is also available for graduate students in the social sciences at the university.

11. Dr. Steve M. Jung
American Institute for Research
P.O. Box 1113
Palo Alto, California 94302

The American Institute for Research is working on a project to acquire data bases relating to career decisionmaking for NIE.

12. Dr. Edward L. McDill
Department of Social Relations
The Johns Hopkins University
Baltimore, Maryland 21218

Dr. McDill has been advising Research Triangle Institute on the second and third follow-ups in this study. He is using the file to look at the effects of high schools and high school curriculum on subsequent educational, vocational, and career choices.

13. Dr. George J. Nolfi
University Consultants, Inc.
45 Hancock Street
Cambridge, Massachusetts 02139

Dr. Nolfi is conducting two studies based on the NLS. One focuses on the transition from high school to work; it examines the effects of family background, ability, high school experiences, aptitudes, attitudes, plans, and college and labor market opportunities on students' school/work choices. The immediate implications of work choices (job earnings, type, status and level of job, and job satisfaction) are then investigated to develop federal strategies for improving work choices. The second study examines the demand for postsecondary education. It will employ several different statistical approaches to the estimation of a demand model in order to select the one with the best record of predicting policy-relevant decisions by students.

14. Mr. Michael Polich
The Rand Corporation
1700 Main Street
Santa Monica, California 90406

Mr. Polich is examining the determinants of enlistment in the military services, with special attention to the differential effects of factors influencing the decision to enlist by race.

15. Agnes C. Purcell
HUMMRO
300 North Washington Street, Room 100
Alexandria, Virginia 22314

The NLS was acquired by HUMMRO for a study of the consequences of termination of the GI Bill's educational benefits. It has also been used for a study of Army representation. The quality-of-life questions in the second follow-up questionnaire will be used in a proposed study.

16. Mr. John K. Schorr
Department of Sociology
Stetson University
Deland, Florida 32720

Mr. Schorr is using the NLS file for his dissertation at Brown University. He is studying career choices in the professions of medicine, law, and college teaching.

17. Mr. Todd Simonds
University Center for Urban Research
University of Pittsburgh
249 Craig Street
Pittsburgh, Pennsylvania 15260

Mr. Simonds intends to use the NLS file to study demand patterns for higher education in Western Pennsylvania. The NLS data will be used to relate intentions to behavior. A similar survey of intentions is being taken of high school seniors in the region.

18. Martha L. Stever
Decision Making Information
2700 N. Main Street, Suite 800
Santa Ana, California 92701

Under contract to OE, Decision Making Information is doing a study of students with cooperative work experience in high school. These students are being compared with those in the NLS.

19. Dr. Alan P. Wagner
College Entrance Examination Board
1717 Massachusetts Ave., N.W.
Washington, D.C. 20036

Dr. Wagner is investigating patterns of student financial aid among students in different types of schools, the determinants of institutional financial aid awards to students, and the influence of the amounts and types of aid funds a student receives on the amount of support provided by parents for educational expenses. OE's "Tripartite" and HEGIS VI data files, and ACE's "Institutional Domain" file, are being merged with the NLS to provide institutional data on the school each student attended or the "first choice" school in the case of students who did not go on to college.

20. Dr. Kent Weldon
Western Interstate Commission for Higher Education
P.O. Drawer P
Boulder, Colorado 80302

The NLS file will be used for a continuing education study.